VTT Technical Research Centre of Finland

The Eco Village Formula

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DISCLAIMER

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“Sustainable future is built in collaboration,
design brings the technologies we create alive.”

Tiina Nakari-Setälä
Vice President Research, VTT
Nordic Fashion Week Association Partner 2018

Preface

As an internationally recognized not-for-profit non-governmental organization, Helsinki Fashion Week's mission is to engage and educate consumers, governments, cross-industries and the fashion industry in regards to circular economy and sustainable trade. By collaborating with and consulting several organizations, enterprizes, research institutes and other industry events on the themes of circular economy and sustainability, we concretely participate in the field work required to create a sustainable global community.

Our annual event, Helsinki Fashion Week, supports Finnish and international designers by offering them a sustainable and free-of-charge platform to showcase their collections to international buyers and media. In addition to giving a platform to the trendsetters of clean fashion, the five-day fashion week sets to inspire sustainable development and cultural interaction by re-evaluating the way we consume, adapt and co-exist with our surroundings in the fashion landscape of the future. Thus, we bring together professionals from various cross-industry sectors who are united by their sustainable visions, values and practices. In this way, the organization aims to inspire the finding of solutions to the industries' current and future problems.

The Eco Village 2018—a project that stemmed from an event concept and strategy for how to host a sustainable fashion week—resulted in further research on circular lifestyle modeling and ultimately provided the formatting of *The Eco Village Formula: 5 Keys to Creating Sustainable Communities*. Out of our concern and dedication in regard to the fashion industry's current state and its negative influences on the environment, Helsinki Fashion Week and The Nordic Fashion Week Association wanted to educate consumers and inspire industry professionals to view the world and concepts such as "fashion week" in a positive new light by introducing a fully circular platform and environment and thus focused, throughout 2018, on bringing about positive change through its 4th edition.

By building this environment, **we wanted to help individuals realize their potential as facilitators of positive change** in respect to climate work, recognize the meaning of well-informed consumption and lifestyle choices and foster connections leading to successful collaboration.

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This publication is based on the Helsinki Fashion Week Eco Village concept piloted on the 20th of July 2018 in Helsinki, Finland and executed by the Nordic Fashion Week Association.

Resulting from the idea that fashion can and should be a strong starting point for development and social change, we have solely focused our ideas in this book around the themes that reflect the Helsinki Fashion Week Eco Village vision. We have sectionalized topics based on the Eco Village formula and its steps, covering aspects that are needed for the creation of a sustainable and meaningful environment:

In Part 1 of the publication, we discuss the ideology and values that greatly contributed to the formation of the Eco Village vision. We explain the concept of the Eco Village platform and look at the Eco Village through the eyes of social psychology and an evidence-based approach.

In Part 2, we start with meaningful lifestyles as the foundation to sustainable communities in a broader sense. We explore the interconnectedness of well-being and community, consumption and mindfulness and the economic and psychological importance of mental wealth over material wealth.

Moving on to building a community of individuals, we emphasize the facilitation of community-mindedness and unlimited self-expression. We discuss the relationship of media, digitization and identity in respect to herd mentality and consumption. We conclude that by allowing for diversity and openness, communities can increase problem-solving and engagement by ensuring the feelings of comfort, safety and creativity for everyone. In transforming spaces,we ask what makes us fundamentally happy and how spaces contribute to the way we view our surroundings and potential social pressures. We seek answers to what creates a home or a happy community while exploring the themes of nature and urbanization. We connect the supply chain of the fashion industry directly to our everyday lifestyles and communicate the results based on the experiences.

In living fairly, we lay out the framework to a successful modern lifestyle; discussing how investing in fair resources, clean materials and individual well-being should be the core focus of our communities and how to redefine the consumer as the citizen to develop our society.

Finally, by enabling intersections of digital and physical, we create a smarter world through the creation of more meaningful experiences, better

problem-solving, knowledge-sharing and functionality for its people and audiences.

The following chapters consist of a collection of thoughts and industry insights provided by our organization and our partners. These articles, written by our guest co-authors, have been intended for professionals and individuals alike and focus on generating a strong know-how to influence personal lifestyles and communities through the evidence given by the Eco Village platform. Furthermore, intended as a general guideline and thought-provoking publication, the contents of this e-book are encouraged to be contradicted and argued over. As such anthologies envision and seek to accomplish different things, we strongly recommend reflecting these findings to those of other studies, as one of our goals is to provide readers with case-based evidence to stimulate the imagination. Furthermore, the work presented herein represents the organization's thoughts and dialogue formed over years of work, field experience and research in fashion and the environment—all as interlinked concepts. However, the research conducted has not followed the scientific method and is more of a free-form source of information.

It is ideal that this information be available to a maximum number of readers whether or not they are familiar with fashion or the other subjects covered during the course of this publication or within the Eco Village. Ultimately, we think that the most important feature provided here is the opportunity to discover and question; allowing for self-observation and the organization of different pieces into a cohesive vision for a desired lifestyle—simply put, the opportunity to adopt a more sustainable vision. This way, the reader can come to understand how every action matters and how we can each contribute to environmental decision-making through our daily choices and take concrete actions towards a circular future. We believe that effective decision-making in respect to the environment and sustainability must incorporate perspectives from everything including economic and social influence, metaphysics, psychology and philosophy in order to generate whole solutions. We should create sustainable income, focus on individual well-being while considering the well-being of others and design spaces and our surroundings to respond better to our needs as humans—all while being mindful of our actions. Thus, we hope that from 2018 onwards an increasing amount of businesses, governments and communities will benefit from the foundation of a formula found through the Helsinki Fashion Week Eco Village.

PART 1

The Eco Village: An Introduction to 21st Century Problem-Solving

i. Building the Eco Village

Establishing the need for an Eco Village

Since its beginning, Helsinki Fashion Week has been all about sustainability and progress. To illustrate our vision, we created the 2018 Eco Village concept following the principles of circular and sharing economies to the greatest extent possible. The Eco Village concept aimed to minimize our ecological footprint in order to illustrate the possibilities that already exist in order for modern communities to become sustainable. Since oftentimes people have prejudices or misconceptions about sustainable lifestyles and communities, it was important to present a realistic and modern platform which would illuminate sustainability in a beautiful and desirable way. Thus, we focused on showcasing, via fashion and design, how we don't need to compromise in order to live a sustainable life; as everything we love can still be manufactured in a more responsible way.

We maintain that all industries need to start acknowledging the huge impact and value that fashion and lifestyle businesses have on the environment and overall cultural development. The Eco Village thus presented a platform for circular communities and a call to action for cross-industry collaborations and innovators across different sectors. The Eco Village demonstrated the connection of our everyday lives and resources to the supply chain of the fashion industry. The findings gathered from the platform are a demonstration that sustainable development is possible, which lets us thrive even on nature's terms.

Based on the concept of keeping materials in use for the maximum length of time, the circular economy model is fighting to replace our current linear model of take/make/dispose. As a result of our current practices, each year millions of tons of textile waste end up in landfills because of overlooked waste and recycling streams. Meanwhile, consumption increases and item-based usage time decreases, leaving us with forever more complex issues in terms of our communities. Luckily, circularity can solve these problems for us. According to Sitra—the Finnish Innovation Fund—in Finland alone, it's estimated that the circular economic model can increase the local economy and business potential between 1.5 to 2.5 billion euros by the end of 2030.[1] In addition to fostering sustainable economic growth, the circular economic model can create new jobs across industries while saving or even stopping the usage of global non-renewable resources. However, as stated by VTT; moving into the circular economy model requires collective and disruptive shaping

[1] Sitra, 2016. New Way For Finland To Increase The Creation of Added Value. September 29, 2016. Retrieved from https://www.sitra.fi/en/news/new-ways-finland-increase-creation-added-value/

of ecosystems and value creation through new innovation.[2]

The strong scientific proof of our planetary limitations, the fast shifts in social and political landscape and the growth of environmental leadership are all indicators of the demand and opportunities circular economy has to offer—which also contain not-yet-understood possibilities for the fashion and other manufacturing sectors. Having witnessed the downside of the fashion industry with its challenges and issues that dominate the current supply chain; it is clear that we need a new textile system where fast, open innovation culture, new business models, technological advancements and cross-industry collaboration dominate the business and manufacturing processes.

Thus, as the primary catalyst for the Eco Village, we set out in search of a world that involved connecting and co-creating with various industries. We aimed for a zero-waste approach by partnering with companies who focus on sustainability and forward-thinking technologies. After persistent research and complex negotiations, the fashion week brought together universities, businesses and NGOs who came together to give the event a tangible form of the co-created, utopia-like reality. By showcasing the latest developments and innovations in technology, electronic transportation, mobility, materials, trends and housing, the event offered unique experiences and alternative visions to its visitors by questioning the nature of being and the evolving reality of the fashion industry and its connection to other industries.

By looking at sustainability from different angles, we also wanted to credit the parties who were innovating and advancing key solutions that could contribute to the movement rather than only looking at technical details or materials as the sole criteria.

From speaking with numerous designers and manufacturers from a range of different countries, we began to notice that sustainability was becoming more of a norm than just a trend among consumers, and that individuals started to expect transparency and development from companies and brands. However—as with all trends and social change in general—society has become vulnerable to its negative side effects. Suddenly, new dangers arize: like not knowing which labels are telling the truth. Alas, consumers are often mislead by companies who take advantage of the values of an individual, and falsely promote products as sustainable, thereby engaging in greenwashing. Indeed, brands themselves face the difficulties of

[2] Aminoff, A., Valkokari, K., Antikainen, M., & Kettunen, O. 2017. Exploring disruptive business model innovation for the circular economy. In G. Campana, R. J. Howlett, R. Setchi, & B. Cimatti (Eds.), Sustainable Design and Manufacturing 2017 (pp. 525-536). (Smart Innovation, Systems and Technologies; Vol. 68). Springer. doi: 10.1007/978-3-319-57078-5_50

knowing what is truly sustainable in the long run and what is not. There is an excess of information available on the subject—much of it false—and this simply adds to the confusion. This is not beneficial for anyone in the long-run, thus there is a growing need for change in the practices of industry in order to transform fashion towards a cleaner and more ethical approach.

In an attempt to create a fully sustainable platform that mimicked the desired lifestyle as closely as possible, it was necessary to look at the living environment systematically in order to isolate each component for further analysis. Not simply looking at fashion but taking a holistic approach, we engaged with seven core components that we decided were pivotal in creating a sustainable lifestyle. These components are: water and energy sources, transportation, housing/living spaces, nutrition/diet, personal care and technology. Over the course of the Helsinki Fashion Week 2018 production process, we grouped these components clearly into 5 themes that were later defined as (1) creating meaningful lifestyles, (2) building a community of individuals, (3) transforming spaces, (4) living fairly and (5) enabling the intersections of digital and physical.

Another idea that the Eco Village addressed was evidence-based research on human behaviour. What makes people relaxed at an event or in a public space? What creates a comfortable environment; one which helps people communicate and interact with each other? In order to answer these questions, we approached the layout of the Eco Village as if it were a playground. The playground concept was originally developed in Copenhagen by Ph.D student Anne Dahl Refshauge, who used evidence-based research and design to formulate the Playlab concept.[3] The Playlab was designed to aid children in having a better time playing outside whilst obtaining better motor skills and communication skills and fighting to curb the future onset of depression caused by non-imaginative urban spaces and their lack of greenery. For many, crossing the idea of a children's playground with a fashion week would seem absurd, but for us it made perfect sense. As the Playlab concept itself was designed as a space that was close to the city centre—nevertheless surrounded by nature—it provided a safe and natural space for children to maintain their naturally inherent curiosity, creativity and capacity for learning. Our question then was: how could we apply a similar method to adults who might be resistant to any child-like behavior? Especially in appearance-angled industries such as fashion, people often put on a facade when participating in professional or social events. We therefore had to systematically look at the concept of a fashion week and break down the event space according to the playground concept in a way that would remain imperceptible to its participants.

[3] Refshauge, A. 2013. Evidence-Based Playground Design: Lessons Learned from Theory to Practice. Landscape research, 2013. Retrieved from https://dx.doi.org/10.1080/01426397.2013.824073

Eco Village design

Nestled between a forest and the sea, the suburban area of Kruunuvuorenranta seemed like the perfect place to host Helsinki Fashion Week's stress-free Eco Village; away from the noize and other external pressures of the demanding city life. Being away from the elements that make people anxious or uncomfortable provided a great opportunity to step out of the norm and connect with new people in new ways.

The Eco Village featured interesting building designs and housing solutions made for greater well-being and functionality. We aimed to focus on the future trends of habitat of certain generational groups, sustainable material efficiency and multifunctional architecture. We installed a solar panel deck to optimize our energy consumption, and worked with Showerloop in building a water purification station and a shower—both functioning on modern filter technologies. The transportation used consisted of electric cars by Tesla and a yacht from Q-Yachts, all charged by solar power on location. The backstage of the fashion week was made of industrial waste containers and decorated by iconic Aarnio Originals design pieces and left-over plants from Innogreen for comfort. At the heart of the Eco Village was the permanent structure and already existing silo—Öljysäiliö 468—repurposed as an art piece from an old oil storage structure.

Drawing inspiration from urban space planning and psychological well-being studies, the dock at the water's edge provided a space for a relaxing outdoor yoga experience in the sun and encouraged participants to 'disconnect [from stress] and reconnect [to nature]' at the event itself. It visibly had a great overall effect on the mental well-being of the people who took part, removing people from the reality of social pressures and subconscious anxiety.

As much as the Eco Village was created based on evidence provided by social psychological research, it functioned as a secondary research platform; much like a social experiment designed to learn about the mental and behavioral progresses in visitors. Intentionally and strategically, we chose to implement a Bluewater water purification station at the event in order to draw attention to the global water crisis and the fashion industry's connection to this crisis. This decision also offered us a second benefit: the chance of creating a "water bottle-free zone" out of the Eco Village which addressed another important issue—the consumption of plastic. By selecting to purify drinking water directly on location from the Baltic Sea, we created an opportunity to investigate possible behavioral changes in visitors and their consumption of bottled water. After the introduction of the concept, returning visitors were reported to have follow suit and partake by bringing along their own water bottles that they then would fill at the purification station throughout the

event week. We thusly demonstrated that when such strategies are thoughtfully implemented and connected to the environment that they serve, the suggested solution can become a natural part ‘progression’ of human behavior. The simple change to bringing your own bottle along as opposed to purchasing a single-use bottle of water can be brought about via a successfully executed concept and plan, hence promoting a new mindset in consumers.

So can this approach be used in other instances, allowing nature to play a more dominant role in our everyday lives via the aforementioned playground concept? Can we learn to feel excited and amazed by nature—just like children? Are we able to see all the details of a bigger picture like the child who understands the whole spectrum of life in its simplest yet most fascinating form? If we aren’t capable of understanding nature as the core of our very existence, we won’t see our responsibility or the value of our efforts on an individual level.

ii. Culture of Co-creation

Why Co-creation?

Until recently, fashion has lived a life of its own, isolating itself from the opportunities that could emerge when combined with new industries and often appearing too fixated on traditions and widely accepted practices—even if not the most functional ones.

Therefore, with transparency and cross industry pollination as one of the building blocks of the Eco Village, we focused on promoting circular and sustainable lifestyles through a space that allowed for experiencing and questioning different themes. This was done via a vivid-exchange of information through different activities, such as an exhibition space, panel discussions, presentations, workshops, and lectures. In addition, the idea was to openly discuss what was wrong in the industry and overall modern lifestyle in order to find and propose solutions. To create the type of transparency that could foster a society where information is easily accessible and shared with everyone, we realized that we needed to engage closely with other organizations to encourage open-conversation built around a community-mindset. Most importantly, in order to create a fashion industry which isn’t separated by niche labels of ‘sustainable’ or ‘unsustainable’, we looked at cross-industry solutions to learn how we can place our desired values at the root of all fashion manufacturing. In order to create fashion that was going to be in all ways responsible, the Eco Village needed a culture of co-creation through interdisciplinary approach.

Co-creation prescribes how companies can better understand their target audience's perception of value and productively work together to create more satisfying results for both sides. Business collaborations can lead to new realizations, maximizing the true potential of seemingly incompatible industries. This is why generation research was also conducted with partner organizations such as WGSN; in order to understand mega and micro trends.

Opening the Eco Village to our audience also allowed the consumers to become part of the change through inclusivity, or 'in-exclusivity'. It's only through such an honest culture of co-creation that we can develop new and modified innovations, processes and tools. Through these solutions we can work to increase our understanding of the circular economy and its implications; not only in the fashion and textile industry, but across various business sectors. In terms of the Eco Village, we asked how we could look at the spectrum of these possibilities and connect them to the overall well-being of the consumer and community. How could the culture of co-creation help us form a community built on the playground concept? With the results that followed, one can only wonder why there are only a handful of important players running co-creative platforms who are seriously opting for the concepts of sharing information and connecting people from different backgrounds and disciplines. Shouldn't sharing be the new norm?

Co-creation in motion

When we started the Eco Village, we didn't know if it would succeed or fail, but we knew that it was important to try. In addition to creating the Eco Village layout together with our partners, we engaged in conversations with people from different cultures and backgrounds in order to find industry insights and what was considered important to different communities. We invited our partners to partake while giving these eco-conscious companies the opportunity to share their thoughts and visions concerning the planet's ecological situation. The companies shared their ideas in the TALKTALK Seminars—a concept created by Helsinki Fashion Week in 2016. With the unifying theme of sustainability at large, the panelists discussed how they saw the future of their industries.

The first panel discussion—titled *Innovation and Sustainability: It's a Match!*—introduced clean-tech and information technology experts who spoke about the interconnectivity of innovation and sustainability. The discussion concluded that the use of solar power in both private households and commercial properties alike are economically and ecologically viable, thus contributing to a more sustainable future. From a financial perspective, electricity prices rize between 4% to 6% annually, making solar electricity a better long-term option. Janne Käpylehto—SolarVoima's CEO, an innovator and an entrepreneur—shared his

thoughts on climate change and expressed that energy is undoubtedly the most important factor. ”Resources need to be used responsibly in order for us to move forward without letting another Easter Island happen,” [referring to the collapse of the living environment due to the depletion of resources]. Additionally, Hofstede Insights CEO, Egbert Schram, concluded that sustainability is a mindset, and combining innovation with sustainability in the mind worldwide is a necessity. Hofstede Insights’ expertise is in creating better work environments and helping organizations to recognize the potential strengths of their practices, focusing on understanding the benefits of the national cultures of the working personnel. According to Schram, in regards to creating awareness and “selling” sustainability as a concept to consumers, it should be noted that not every country’s inhabitants are convinced in the same manner. For example, a celebrity in India with a wide reach has the power to spread awareness and potentially change the ways in which people consume. In countries like Germany, people would rather change their ways when they are given factual information about a subject.

Bluewater—Sweden’s leading drinking water technology company specialising in solutions for reusing water for drinking and other purposes—found out in their research that up to 80% of the world’s drinking water contains microplastics which can contribute to serious health issues such as hormonal and fertility defects and certain types of cancer. Contributing to the Eco Village with their water station, the technology used Baltic Sea water to produce pristine drinking water at the event. Anders Jacobsen—the CEO and co-founder of Bluewater—proposed that people should select one way in which they are behaving unsustainably and attempt to change one thing every day. Moreover, CEO Petri Alava from Infinited Fibre Company stated that fashion is currently the second most polluting industry in the world after the oil industry. Around 10% of the world’s carbon emissions result from the textile and apparel industry; the industry which uses more water than any other industry other than agriculture. The Infinited Fiber Company’s purpose is to revolutionize the fashion industry by creating sustainable textiles that are durable and reusable, thus directly contributing to a circular economy. ‘Infinited fiber’ can be produced from biomaterials such as wood and cotton-rich textile waste via a highly ecological manufacturing process (in comparison to viscose, for example). Janne Kjellman, owner and founder of Q-Yachts and Oceanvolt, discussed how making products that last are the foundation of sustainability. A keen sailor himself, Kjellman founded Q-Yachts; a company specializing in eco-friendly electric yachts which are powered by Oceanvolt electric motor systems. According to Kjellman, ”We need to be able to sell these ideas to the consumers, which is why many other industries have much to learn from fashion; making it an extremely interesting industry to keep an eye on.” He advised people to read more and learn about sustainability issues, thereby empowering oneself in order to make a difference.

During the second panel, *The Future of Fashion*, founder of Helsinki Fashion Week Evelyn Mora described how innovation and sustainability go hand in hand, and that every idea should start with sustainability as its core value. We should all be focusing on the new generation when it comes to fashion, as they are going to be the future. Young designers have access to a large amount of available educational material regarding sustainability; and by using this knowledge in the fashion industry today, they will be able to design clothing sustainably and use this to their advantage in their careers. Clare Press; a passionate advocate for ethical fashion, presenter of the Wardrobe Crisis podcast and Australian VOGUE's Sustainability Editor-at-Large, is the author of two books about sustainability in the fashion industry, *Wardrobe Crisis* and *Rize and Resist*, which revolve around themes of grass-root activism and how fashion has changed over the last 20 years. A point she raizes is that years ago, we knew where our clothes came from, who made them and where they were made; but nowadays, we have no idea who handles our clothing and what the story is behind each item. She asks that, while fashion is about reinventing itself all the time, why we can't we reinvent the system?

For the final panel, *How To Be Sustainable as Designers and Consumers*, we invited various professionals working with sustainability and design for their insights. Sara Maino, the deputy editor-in-chief at Vogue Italia as well as the head of Vogue Talents with over 20 years in the field, explains how it is important as a designer to start a label with the idea of open communication, thus informing the consumer about who made their clothes, where it was made and in what kind of working environment these items were made. In response to the question of how sustainability is related to fashion, Maino said that fashion schools need to provide sustainability courses because students need to understand how to become sustainable designers. Maino believes that it is each and every individual's responsibility to make the system better and contribute in their own lives towards a better, more sustainable future. Light artist and designer Jari Vuorinen, whose company designed the event's venue in Öljysäiliö 468, described how the initial process of lighting a permanent space alongside the architect can become sustainable in its own ways. The LED revolution has aided the future of sustainability and given designers the option to light subjects or spaces with materials that use minimal energy. One LED light, Vuorinen explains, uses less energy than a toaster and therefore has a very positive effect on energy consumption levels.

Results obtained through co-creation

By facilitating these conversations through the TALKTALK seminar, we were able to illuminate a much wider perspective of the situation for the consumers than

otherwise would have been possible. We were also able to highlight topics and areas of business that interest the audience and therefore have a greater potential to continue the conversation. Similar approaches are needed in different disciplines in order to co-reinvent the future in a meaningful way. In addition to the panels, Helsinki Fashion Week and VTT premiered the 'Sustainable Good Life' exhibition, focused on future and technology themed lifestyle innovations, free of charge for everyone present at the Eco Village.

At the core of the Eco Village ideology, the VTT Eco Village Exhibition strategically communicated a shared vision for the future of everyday life, focusing on the 'look', 'live' and 'feel'. The showpieces designed and innovated by VTT addressed human experience and its environmental impact. The exhibition questioned conventional ways of material consumption and disposal, while demonstrating sustainable alternatives based on the latest research and innovations provided by VTT and their partners.

Addressing every stage of the development process—from exclusive laboratory- scale samples to commercially available products—visitors were able to see, touch, smell, taste, listen and interact with a large variety of bio-based solutions. By creating a unique and never before seen- experience of a world where a circular economy and sustainable values are at the heart of every aspect of human living, this green world concept demonstrated how we could proceed via connection and collaboration between industries and research institutions, using a creative approach to technical innovations in order to engage consumers. In other words, we demonstrated how it is possible to develop and establish various nature-friendly value chains that lead to a zero waste micro-society.

Testing the livability of the result

Indeed, there is a bit of a jump from being a guest at an event for a few hours to actually 'living' in the Eco Village. So in order to put the Eco Village to the test, employees of the Helsinki Fashion Week took it upon themselves to actually live in the Eco Village for 3 days. We titled this the *Hum4n Experience Initiative*.

We didn't only want to test the basic livability of the Eco Village, but also to acknowledge our individual desires in respect to consumption. We thus looked at the effects of transitioning from 'excess of choice', to a life based on 'the bare necessities. The result was substantial. By living such a minimalistic lifestyle, we felt a general change in our thinking and approach to life. By reducing the number of material possessions around us, our very habits were influenced, and the internal desire to consume was reduced. We also found the space and time to reassess our regular connection and relationship to material things.

Importantly, combining new technologies and applications, sustainable materials, creative space design and communal activities—the platform focused on the aspects that made Finland unique while proposing already existing solutions that the nation could relate to. By using locally sourced health-benefitting natural materials for our structures, we managed to tap not only into the imaginations of people internationally but also locally.

Extremely inspiring and actionable, the main realization was that creating sustainable communities takes a lot of collaboration; along with fundamental changes in societal ideas and infrastructure, and a general shift in thinking on what it means to be a citizen. Experiencing the positive side-effects of this approach on personal well-being, knowing that such a change is necessary for our planet, and now understanding that such a transformation is possible; we began to question why there weren't more communities like the Eco Village. Why are individuals not demanding more from their cities, regions and countries? For us, it became clear that today there are no more excuses to keep on living as we do. We have the means at our disposal to live better and more meaningful lifestyles in harmony with our planet, and ourselves. Now is the time to invest in these lifestyles as communities in order to create the 'new normal' of living.

PART 2

Introducing Five Keys

to Creating Sustainable Communities

i. Creating Meaningful Lifestyles

In creating the Eco Village, we went to great lengths contemplating the factors that contribute to well-being on a mental, physical and subconscious level. This holistic approach, we believed, was necessary to the success of forming sustainable communities. In addition to fashion, we assessed a number of factors such as food, housing, transportation, mental well-being, hygiene and cosmetics.

Sauna

In terms of well-being, the ability to relax and enjoy a stress-free environment is very important for the performance and productivity of an individual. The influences of materials and spaces on an individual in a sustainable lifestyle can have many conscious and subconscious effects. To bring this revelation into the Eco Village, we wanted to utilize a typical source of relaxation and well-being in our existing community in order to make it easier for individuals to absorb and embrace the environment which we were creating. Being that we were in Finland, it was obvious that we had to have a sauna. By collaborating with Narvi—a Finnish sauna company—we added a sauna to the event platform and opened it to visitors. Custom made by Narvi specifically for the occasion, it fit its surroundings perfectly. The traditional idea behind saunas is that they release tension and toxins from an individual's body, lowering stress levels and increasing overall health. Importantly, 'sauna'—a word which in Finland transcends the 'hot little wooden room'—has a cultural element that serves as a community fostering activity. The benefits of using a sauna at the event were hence two-fold.

Materials

Every sauna-goer needs a towel, and we wanted to create an environment where our daily items would leave us with a clear conscience. Working with local (and not only international) businesses is key to sustainable economic development. We used this opportunity to work with Finnish company Lapuan Kankurit for their ecological materials and ethical production. Lapuan Kankurit is based in the small town of Lapua in Finland, where they create home textiles and similar products from native materials such as linen. Linen requires only rain water to grow (no irrigation needed) and contributes to the healthy diversity of an ecosystem.

Food

Diet forms a central part of human well-being. The flavors of the food we eat don't only nurture our body; they also bear significant effects on our psychology. Food is a major political player in the great scheme of things, and wasting it has increased greatly. In fact, food waste has become a critical problem globally in terms of greenhouse gas emissions.[4] Dietary habits have changed in the course of the past decade due to trends, opinion influencers and easily accessible information, causing food—and its origins—to be one of the hot topics of our time. Despite major vegan movements, the demand for livestock products continues to grow—and this demand is expected to increase twofold over the next few years. According to the UN, livestock production currently accounts for around 40% of the gross value of agricultural production. Agriculture, specifically meat and dairy products, accounts for 70% of global freshwater consumption, 38% of total land use and 19% of the world's greenhouse emissions. Additionally, the food industry is strongly connected to the fashion industry, as materials such as leather are a 'byproduct' of meat production.

Partnering with Restaurant LOOP created the ideal opportunity to showcase that it is possible to follow a healthy diet of eating sustainable, delicious meals without creating waste. LOOP creates healthy, sustainable meals out of 100% fresh rescued food. Some of these products might have been labeled wrong, have a slight ugly edge or be nearing their expiry date, but these factors do not make the quality of the products inadequate. In fact, these products more often than not are in the same state as the food that has been in our refrigerators or cupboards for a day or two. Among other sources, LOOP receives food from different supermarkets and, after carefully sorting the good products from those that are unusable or not of sufficient quality, delicious meals are created. This business model of LOOP's is based on innovation and creativity. Since the ingredients vary from day to day, there is no permanent menu at LOOP; which creates an element of excitement and surprize for its customers. According to executive director Satu Vainio, the menu may even change halfway through the day depending on the available ingredients. The dinner menu consists of mainly vegan dishes, but there are often meat options available on regular days. Loop has a strong vegetarian ideal, but they also believe in rescuing meat from the supermarkets as it makes sense considering the amount of resources, time and labour involved in meat production. Besides the food served at the venue, LOOP innovated a two-ingredient dinner for the purpose of the Eco Village. For the dinner, we enjoyed different high-quality meals made from two very basic ingredients: potatoes and onions. The ingredients were selected to highlight

[4] Food and Agriculture Organization of United Nations FAO. 2017. The future of food and agriculture—Trends and challenges. Rome, 2017. Retrieved from www.fao.org/publications

the issue of overproduction and to illustrate how creativity can turn a seemingly boring ingredient into something exciting.

Beauty and Cosmetics

Consumers around the world have began ambitiously approaching healthier alternatives to beauty products.[5] The demand for these alternatives is noticeably higher than that of in fashion, as people are more concerned about what they put into their bodies as opposed to what they are consuming externally. It makes sense that individuals may often prioritize the impact of a product that directly affects their own health before considering the impact their clothes,[6] or other consumption choices may have on the environment, other people and animals. Information available in the media is evidence of increasing awareness of the dizzying amounts of chemicals and harmful toxins in skincare products and make-up. The organic make-up industry has thus experienced significant growth over the past few years.[7] So it seemed natural that we would to invite environmentally friendly and ethical make-up and skincare brands to partner with us on the Eco Village concept; thereby presenting consumers with such product options that can make a positive difference.

It was important to communicate that choosing green beauty and lifestyle products does not mean giving up on your unique and desired style. On the contrary; products made with organic and environmentally friendly ingredients are nothing short of wonders. However, making sustainable cosmetics choices can be challenging—especially to newly conscious consumers—as not enough information and inspiration is always available and breaking away from products we have gotten used to using in our daily routines can be tough.

The amount of chemicals used in not only the production phase but also in the final product itself is enough to turn any reasonable consumer in the healthier direction, but most commercial makeup brands are still set in their ways; and the majority of consumers, mostly uninformed of the impact certain chemicals have on their skin and on the environment, continue their loyalty to these brands without questioning or challenging them. Harmful ingredients such as aluminum are very

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[5] Dimitrova, D., Fricker, R., Vocke, R., Williams, B.S. 2017. The rize of wellcare: A new market at the nexus of health, food, and beauty. Strategy&, July 29, 2017. Retrieved from https://www.strategyand.pwc.com/reports/rize-of-wellcare

[6] Plell, A. 2018. There Are Hidden Chemicals in Our Clothing. Online Article. Remake, January 5, 2018. Retrieved from http://remake.world/stories/news/there-are-hidden-chemicals-in-our-clothing/

[7] Wischhover, C. 2018. The "natural" beauty industry is on the rize because we're scared of chemicals. Vox, September 18, 2018. Retrieved from https://www.vox.com/the-goods/2018/9/18/17866150/natural-clean-beauty-products-feinstein-cosmetics-bill-fda

often found in various skincare products including deodorants and make-up, where it's generally used as an absorptive agent. The harmful effects may not be immediate, but long term use of aluminum containing products pose potentially serious health threats to both men and women an has been linked to cases of Alzheimer's, among other harrowing side effects.[8]

Fashion designers often choose to compliment their catwalk looks with matching hair and make-up. This provides fashion weeks with the opportunity to consider with which cosmetics brand they are going to partner. For us, it was important to find a collaborator who would share the same vision and values regarding beauty consumption while taking shared responsibility over the model's health and skin. We decided that the catwalk looks would be executed with organic mineral makeup products free of micro-plastics, and that we would offer information on organic and ethical skincare products. This not only aligned with the Eco Village concept and principles, but addressed recent concerns which have been raised in the media over model's unhealthy exposure to chemicals during shows and over the length of their overall careers.

We partnered with Finnish company TwistBe—an international online shop and store based in Helsinki. Together with TwistBe, we invited Henua Organics and Lauren Brooke Cosmetics as the official beauty partners of the event. In addition to skincare, we partnered with Kevin Murphy and Farfalla to provide ethical hair styling products for the catwalk looks.

Inspiring Consumers To Make More Conscious Skincare Choices

by Kati Partanen, Co-Founder, TwistBe

The 2018 Helsinki Fashion Week Eco Village was the first ever fashion week to use only 100% natural, organic and sustainable makeup and skincare products to create the 400 runway makeup styles. We were chosen as the official makeup and skincare partner for our commitment to sustainability and unique approach to offer consumers products with their (and the environment's) best interests in mind. The makeup styles were created with organic and natural Lauren Brooke Cosmetiques mineral makeup products and the newly launched Henua Organics skincare product line. The stunning looks seen on the runway are evidence of how being ecological and natural means you don't have to compromise style; may it be show-stopping dark, screaming bright or etheric beauty. Thus, the Eco Village showcased fashion and beauty together in the most natural, ecological and ethical way.

[8] Maple Holistics. 2018. The Dangers of Aluminium Powder in Cosmetics Explained [blog post]. March 24, 2018. Retrieved from https://www.mapleholistics.com/blog/aluminum-powder-in-cosmetics/

With this partnership, we really wanted to highlight the importance of sustainability in skincare. Both the beauty industry and consumers need to change in order to stop overloading our soil, waters and bodies. But they need help. Despite the booming natural cosmetics industry, the key challenge at hand is creating awareness and understanding among consumers. Therefore, as founders of TwistBe and as academically trained skincare experts, mothers and best friends, we are here to share our solution. Our special power lies in our background; we've actually studied skin biology, cosmetics manufacturing and we all have a degree in business. This allows us to understand what the skin needs, what's good for the body and what consumers should actually pay for their products. This information is critical in making more conscious and environmentally friendly decisions for your skin, wallet and the environment—and that's the only way that cosmetics entrepreneurs should operate. That's why we gathered all of our knowledge—from skincare, to skin biology and cosmetics formulation—to put together an inspiring and practical online course in holistic skincare: the world's first of its kind. The course has received rave reviews in Finland and, as the first English customer reviews are now coming in, the feedback continues to wow even us. Where Helsinki Fashion Week stands tall in making sustainable the new normal in fashion, TwistBe is working towards the same goal in skincare and cosmetics. After all, you need to act humanely and understand what's best for the client in the long term, not just what benefits your company in that exact moment. You need to care for people and the planet.

Of course, it isn't simply how the contents of a product affects our health directly that is important, but also how the content is sourced and what business models are practiced by these various brands. There are a number of factors to take into account: from the ecological to humane. In this regard, we were impressed with the commitment to long-term objectives such as Farfalla's contracts with selected organic growers in over 40 countries. We are convinced that these companies are simply operating with foresight, enabling them to navigate the terrain of the future.

Throughout not only the fashion but many other industries as well, many companies are using the trend of 'sustainability' to their advantage without actually seriously committing to it. With so much conflicting information and choice, the cosmetics consumer can often be overwhelmed; making it easy to fall prey to greenwashing.

ii. Building a Community of Individuals

We are all connected, yet are each an individual. Therefore, we should always seek ways to apply community-mindedness while enabling freedom of self-expression and diversity in our actions. The modern-day consumers—especially those representing Millennials and Generation Z—are hard-working and decisive, driven by their mixed views of traditional and aspirational attitudes towards ownership. Having been raised in the digital era, socially and technologically empowered Millennials and Gen Z are looking to concretely challenge the status quo through a practical approach lifestyle. Combined with their radical viewpoints regarding society, they favor services and brands that take into consideration the environmental, racial and sexual diversity of their multi-colored reality.[9]

Citizen participation from every background is key. Finding ways to bring people into the process of problem-solving in the urban environment, organizations and governments can create strong and long lasting interaction and a more complete understanding of the groups involved.[10]

In the case of the Eco Village, we applied different activities to foster the visitor's connection to each other and to themselves. We introduced holistic beauty workshops, yoga classes, panel discussions and university lectures in order to engage the audience in a meaningful way. We listened to our audience and the community in order to understand what was in demand and which types of information were needed.

Self-Expression

Current research and trend analysis have pointed out how the increased use of social media platforms has created an evolution of the consumer's social self. This new self identity that alternates between realities and platforms through carefully curated multi-personas, is a phenomenon that leaves many brands

[9] Fromm, J. 2017. Gen Z Is On The Rize, Here Is What You Need To Know. Forbes Magazine, January 4, 2017. Retrieved from https://www.forbes.com/sites/jefffromm/2017/01/04/gen-z-is-on-the-rize-here-is-what-you-need-to-know/#7c8983de7c39

[10] Llopis, G. 2014. 5 Ways Leaders Enable Innovation in Their Teams. Forbes Magazine, Apr 7, 2014. Retrieved from https://www.forbes.com/sites/glennllopis/2014/04/07/5-ways-leaders-enable-innovation-in-their-teams/#573e367a8c4c

perplexed.[11] Our own young team of staff and volunteers provided the perfect "focus group" environment where we covered these topics over our trainings quite frequently during the production process of the Eco Village concept. Discussing how the constantly changing narrative of oneself and the endless connectivity of the social media environment has created an alternative reality where anyone can be anything, we discovered that participating in communal activities was seen as a particularly important sign of success and personal development.

This got us thinking about the deeper relation between the community and self-expression in terms of lifestyle, connectivity and our consumption habits. By carefully selecting what is posted and when, these young consumers strategically position themselves in their society, purposely capitalising on certain achievements and forging the desired self-image to reach specific audiences.[12] As the value of products is constantly decreasing, such intangible concepts like personal branding, influencing and 'sense-fluencing' are raising the stakes.[13] Therefore, it was concluded that the community-mindedness of the Millennials and Generation Z will visibly affect the way and purpose for which products or services are being sold in today's and future marketplaces. This behavior that disrupts the conventional belief of a consumer as a rather static being with rather static preferences is forcing companies to understand what is expected and wanted from them in terms of flexibility, variety and openness, in order to stay relevant across the strong value-system of these multi-persona consumers.

In fact, such developments regarding social media, importance of online presence, multi-persona culture and accessibility to quick information have shaped the world views of the modern consumer to be far more accepting than those of their predecessors. Accepting towards individual differences, the new consumers welcome natural beauty, imperfections and embrace body-positivity,[14] while in the fashion industry we have witnessed how gender boundaries are being broken as unizex, non-labeling of things and androgyny seem to increase from year to year among these digital-era citizens. Thus, we propose that modern-day communities

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[11] Deloitte. 2018. The Deloitte Millennial Survey 2018: Millennials' Confidence in Business, Loyalty to Employers Deteriorate. PDF. Deloitte, n.d, 2018. Retrieved from https://www2.deloitte.com/global/en/pages/about-deloitte/articles/millennialsurvey.html ; Fromm, J. 2017. Gen Z Is On The Rize, Here Is What You Need To Know. Forbes Magazine, January 4, 2017. Retrieved from https://www.forbes.com/sites/jefffromm/2017/01/04/gen-z-is-on-the-rize-here-is-what-you-need-to-know/#7c8983de7c39

[12] ibid.

[13] Critisized. 2018. The Dark Side of Instagram. Critisized, July 13, 2018. Retrieved from http://critisized.de/the-dark-side-of-instagram/

[14] Fromm, J. 2017b. Getting to Know Gen-Z: How The Pivotal Generation is Different from Millennials. PDF. Future Cast, Millennial Marketing, January 2017, p. 20. Retrieved from http://www.millennialmarketing.com/wp-content/uploads/2016/12/FutureCast_The-Pivotal-Generation-7.pdf

and relationships be built on creativity and freedom. A good example of this was seen in our partnership with Hotel Helka, who embraces diversity and acceptance throughout their whole business model. As a core component of their values and strategy, Hotel Helka welcomes everyone to feel at home despite their background or sexual orientation. Just like at Helka, communities should strive to be sustainable and ethical; and certain identities need to be communicated in a way that is easily related to by a specific audience but approachable for a larger sum in order to stay relevant. These communities should focus on inclusivity over exclusion, just like the Eco Village, because the modern world leaves no space for isolation. Instead, it's all about freedom of self-expression, no matter if we speak of age, gender, race or sexuality—and that should be the basis for all our interactions.

With a special focus on the younger generations in our 2018 edition of Helsinki Fashion Week, the Eco Village aimed at challenging the status quo and inspiring younger generations to be curious and daring in everything they do. We aimed at inspiring youth through design and in questioning existing norms and rules in order to create something different and long-lasting—similar in tradition to the iconic designs of visionary Finnish designer Eero Aarnio, the creator of Aarnio Originals.

We are all connected, yet are each an individual. Therefore, we should always seek ways to apply community-mindedness while enabling freedom of self-expression and diversity in our actions. The modern-day consumers—especially those representing Millennials and Generation Z—are hard-working and decisive, driven by their mixed views of traditional and aspirational attitudes towards ownership. Having been raised in the digital era, socially and technologically empowered Millennials and Gen Z are looking to concretely challenge the status quo through a 'practical approach' lifestyle. Combined with their radical viewpoints regarding society, they favor services and brands that take into consideration the environmental, racial and sexual diversity of their multicolored reality. Citizen participation from every background is key. Finding ways to bring people into the process of problem-solving in the urban environment, organizations and governments can create strong and long-lasting interaction and a more complete understanding of the groups involved.

In the case of the Eco Village, we applied different activities to foster the visitors' connections to each other and to themselves. We introduced holistic beauty workshops, yoga classes, panel discussions and university lectures in order to engage the audience in a meaningful way. We listened to our audience and the community in order to understand what was in demand and which types of information were needed.

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a larger sum in order to stay relevant. This way organizations can grow a tribe of their own that allows for a ”limitless yet limited” self-expression; inspiring creativity, trust, and conversation on the multi-persona consumer’s terms. The thought of such limitless limited self-expression is rather intriguing: defined, meaning intentionally limiting your external image while expecting unlimited freedom for self-expression and creativity in terms of sexuality, power, freedom of choice and other traditionally controversial topics. The idea of herd mentality—following the mass over individual preferences—also poses its own challenges. The influencer culture of the social media era can have a great impact on the success of a product or service, as the acceptance or rejection of a group leader can cause a wave that disrupts the market like never before.

Community-Mindedness

One of the key factors in making sustainability a reality is realizing that it can and will only work through collaboration and knowledge sharing. This change would need to be a team effort and, by having team players—each of them bringing their own specific skill set to the table—a mutually valued outcome is inevitable. Every single contribution towards a sustainable and circular future is valuable and supports the ongoing process.

As a starting point, we were impressed by the approach electronic automobile company Tesla has used since 2014. Tesla announced that they would let other companies use their patented technologies in an attempt to move towards open-source collaboration and development of electric transportation technology. According to forward-thinking engineer and entrepreneur Elon Musk, the other companies designing and manufacturing electric cars could benefit by applying the open-source philosophy to their practice, too. By making their patents freely available, Tesla empowers others to build quality electric vehicles. More electric cars come along and the grid gets bigger and, as the pie grows, everyone gets a larger slice.[15] In terms of the Eco Village, we were interested in how we could apply this kind of ‘open-source thinking’ to the fashion industry and community.

‘Sharing’ was an important keyword in cross industry collaboration and co-creation. By sharing knowledge, we allow ourselves the opportunity to not only learn but also to give back. People love to travel and no doubt one of the main reasons we love to travel is that we get to learn about other cultures. At first it might seem like a strange simile for the sharing of valuable business secrets with competitors; but this is only due to the way we’ve been conditioned to approach

[15] Musk, E. 2014. All Our Patent Are Belong To You. Tesla, June 12, 2014. Retrieved from https://www.tesla.com/blog/all-our-patent-are-belong-you

business. When we open ourselves up to learning about a new culture, the people within that culture are often flattered, and more than willing to share their culture with us. It would be difficult to argue that this sharing of ideas is not beneficial to all parties involved. If only we could extend this type of thinking—as in the case of Tesla—to the marketplace. The benefits would be substantial.

This is just one way that companies who seek a future on a global scale can develop and create opportunities to collaborate with other companies and individuals from different cultures and in different industries.

In the case of Tesla, the company's aim was to discover what would affect the future most in a positive way, and then implement that idea in their practice. The possibilities are endless when companies and research institutes decide to share information freely, encouraging people from different sectors to collaborate and share their knowledge. By applying the open source philosophy to patents, the chances are that in many cases companies will be able to strengthen their position as opposed to diminishing it.[16] Knowledge-sharing is a giant leap in the right direction if we are to tackle the problems that currently face our planet. The multitude of possibilities become a reality when knowledge is shared to this extent, allowing innovative individuals and companies alike to use this information to broaden their knowledge spectrum, inspiring world-changing ideas. It may seem counterintuitive at first, but it makes sense when one begins to see our world as a whole, understanding the factors that define a functioning, responsible circular economy.

Responsibility Without Complexity —This Is How WeCare

by Clarion Hotels

There is no business on a dead planet—this is the leading guideline of the Nordic Choice Hotels. And certainly, combining profitable business and responsibility towards people and the planet are written in Nordic Choice Hotels' genes. As a proud member of Nordic Choice Hotels, we at Clarion Hotels Finland take sustainability seriously. We believe that the most impactful responsibility programme consists of locally implemented activities and actions carried out in all Nordic Choice Hotel countries. For us, responsibility means a host of things. Responsibility could involve, for example, supporting Icehearts, a local charity organization that does marvelous work in

[16] Alford, H. 2018. How Elon Musk Creates New Markets Faster Than Anyone Else. Hackernoon, January 18, 2018. Retrieved from https://hackernoon.com/how-elon-musk-creates-new-markets-faster-than-anyone-else-dfdad0a61e99

supporting young kids at risk of social exclusion by giving them a sports hobby. And, as you can find one of our hotels on the seafront, taking care of local waters has become an increasingly important issue for us. We are grateful to be able to collaborate with the John Nurminen Foundation in their tireless mission to save the extremely vulnerable Baltic Sea and its heritage for future generations.

Food is a very important issue when it comes to responsibility and we continuously develop our menus and food related operations. In our breakfast buffet, we clearly mark, with signs, locally-produced and ecological choices. We use smaller plates in buffets (we have noticed that doing this reduces food waste) and place non-meat options before the ones containing animal protein. We follow the WWF's fish guide—which identifies fish from well-managed sources—when serving seafood. In our bars, we even serve Zero Waste cocktails! Our conference attendees have the option to order a special WeCare menu, out of which part of its profit is donated to Icehearts and the John Nurminen Foundation. Moreover, Sustainable Hotel Operations entail switching to renewable energy, reducing water consumption per guest per night, and recycling 99% of hotel-generated waste by 2021.

Our aim is to make it fun and easy for our guests to make sustainable choices. In fact, we believe it can sometimes be very easy. For example, during their stay, our guests can skip their hotel room cleaning and we donate the costs saved to UNICEF's Sweet Dreams project. Another example of how we bring the topics we find important closer to our guests is in how we design WeCare actions for our guests in the hotels. Last spring, we held a Norppalive screening on a giant screen—it's the WWF's video stream of a rare Saimaa ringed seal relaxing on a waterside rock. All in all, since we opened our doors in 2016, we have seen that traveling and staying in hotels is not what it used to be. Our guests, employees and the community around us are no longer content with 'business as usual'. Instead, they are now both environmentally and socially conscious in their choices and expect more from us in the like. We need to do better in the ever-changing travel industry and go beyond these expectations.

iii. Transforming Spaces

Cities are fundamentally about people. In our environments, we naturally seek comfort and greenery. However, we see open spaces too often as commercial opportunities and too rarely as possibilities for social encounters or community solutions.[17] A space that's not well designed can't produce a well functioning community, much like badly designed fashion item won't serve any purpose.

[17] Burden, A. 2014. Amanda Burden: How public spaces make cities work [YouTube video]. TED Talks, April 7, 2014. Retrieved from https://www.youtube.com/watch?v=j7fRIGphgtk

Therefore, a spatial design should not only be about looks but about feelings as well. When designing spaces, we should ask ourselves and those around us how we feel in a certain space and what emotions or experiences we generate in our communities by looking at our surroundings differently? Such spaces and decisions have great power by concretely transforming how we live in a city, how we feel about our environments and whether we choose one living location over another.[18] When it comes to climate change, health and environmental issues, not only is how a building is constructed a crucial factor, but also how a building is maintained.

It's time that we start looking at cities and spaces as the living beings that they are—filled with energy, life, history and opportunities. We should learn as a society to establish ways in which to work together with cities, architects, citizens and interdisciplinary developers for better space design and architecture. [19] Opening up the idea and design process to not only the people who are going to inhabit the spaces but also the people who need to share the city space with that building, is a logical step that has unfortunately historically all but been taken.

Human beings are naturally drawn to symmetrical shapes and figures consisting of earthy materials such as wood, bamboo, rock and water.[20] 'Inspired by nature' should be at the heart of the design of spaces. We can increase our personal capacities and relieve stress by incorporating these elements into our cities, eventually resulting in more pleasant and innovative spaces.[21] Thanks to advancements in technology and material innovations, previously fire hazardous materials like timber have become equal in their endurance to iron and concrete, creating a whole new world of opportunities in the field of green architecture. Many companies have started to experiment with ever more ambitious and creative designs to begin building wooden skyscrapers, and modern architectural masterpieces such as libraries, governmental buildings and sustainable neighbourhoods.[22] Author's note: space as an indicator of wealth is a personal speculation and conclusion from some knowledge gathered while working in real estate and having conversations with people. Land prices are continually rising due to urbanization, e.g. if you bought/invested in some cheap land in New York City at

[18] ibid.
[19] Kushner, M. 2015. Why the buildings of the future will be shaped by … you | Marc Kushner [YouTube video]. TED Talks, March 10, 2015. Retrieved from https://www.youtube.com/watch?v=hha0NsYXS5c&t=24s
[20] Lightman, A. 2014. The Accidental Universe: The World You Thought You Know. Vintage Books, 2014.
[21] Robertson Cooper, 2015. Human Spaces: The Global Impact of Biophilic Design in the Workplace. PDF. Retrieved from https://greenplantsforgreenbuildings.org/wp-content/uploads/2015/08/Human-Spaces-Report-Biophilic-Global_Impact_Biophilic_Design.pdf
[22] Seeker. 2018. Skyscrapers of the Future Will Be Engineered to Copy Nature [YouTube video]. Seeker, May 03, 2018. Retrieved from https://www.youtube.com/watch?v=-OPGQ9EhDZM&t=23s

the beginning of 1900's and you kept that in your family who now owns a parking lot in NYC, the sale of that piece of land today would make them multi-millionaires. It's a widely recognized phenomenon and also the reason to why apartment sizes are decreasing, because new development in crowded areas is expensive and unpractical but highly in demand.[23] Together with the increasing trend for eco-friendly, sustainable and all-around healthy living, the Eco Village provided insights for leading a healthy, happy lifestyle while keeping a person's carbon footprint to a minimum. The Eco Village, created out of natural and sustainable materials, showcased lasting architectural innovations and living trends through the 'mini' and 'mobility' housing concepts. Throughout the Eco Village, we established an environment where sustainability and circularity had a strong and well-defined presence in the world of architecture and design.

One of the examples of Nordic eco-design selected for the Eco Village was Kontiotuote (Kontio)—an ecological building company focusing on well-being as the core value of living solutions. At Kontio, more than four trees are planted for every one tree cut in an initiative to renew the forest, creating sustainable development while respecting the long tradition of Finnish forestry. It was important to showcase the fact that responsibility within sustainability lies also in respecting heritage, which is a component often overlooked by most companies. By using genuine arctic pine as a raw material, Kontio presented a house that was not only strong and durable but had an intrinsic resistance to moisture and mold through the material's natural antibacterial properties. The materials used by Kontio when building homes have been proven to be good for the heart, fight asthma and allergies, and reduce stress.[24] The value point of the collaboration was to illustrate how careful and persistent implementation of sustainability across business operations can create products and services that truly resonate across the supply chain, transmitting trust and loyalty all the way to the end-consumer.

Our second housing innovation was provided by Estonian-based Kodasema. To personally experience the opportunities and effects of the growing trend of mobility housing, we inhabited the Kodasema's KODA house during the fashion week in the Eco Village, as part of the Hum4n Experience Initiative. By investigating life in the Eco Village as a future-oriented hands-on experience, we were seeking to understand the possibilities of circular living and lifestyle firsthand. The KODA house also functioned as a gathering place for Helsinki Fashion Week lectures,

[23] Massello, Melissa, 2018. A New Survey Says People Want to Share Gardens and Wifi, But Not Bathrooms. Retrieved from https://www.apartmenttherapy.com/ikea-co-living-trends-survey-2018-future-housing-256145

[24] Kontio. 2018. Healthy Living ™—Voi hyvin kotona [Healthy Living ™—Feel Good At Home]. Kontio, n.d, 2018. Retrieved from https://www.kontio.com/fi-FI/healthy-living/ ; Kontio. 2018b. Astmaatikon Hirsikoti [Arctic Pine Home of an Asthma Patient]. Kontio, September 12, 2018. Retrieved from https://www.kontio.com/fi-FI/stories/astmaatikon-hirsikoti/

workshops and interviews; illustrating the possibilities of community-focused mobility living in a way that would not have otherwise been possible.

KODA by KODAsema

by Kelli Roosimägi & Birgit Linnamäe

KODA is so much more than a house: it is a way of living. Kodasema LTD is a Nordic design and engineering company that creates innovative living and housing solutions. The movable KODA houses function as homes, hotels, cafés, studios, community spaces or even business hubs while being produced off-site (pre-fab) with uncompromising speed and quality.

On a large scale, there are two types of KODA houses: the exclusive, smart and innovative KODA Concrete and the cosy, wooden, Nordic KODA Light. The initial idea behind the KODA houses was to improve the construction sector by developing a small, sustainable and mobile home so that it can be easily placed on vacant or temporarily vacant plots in city centers. This helps serve the cycles of the real-estate industry in many urban environments, solving the problem of property owners who wish to postpone their development. Produced like cars, KODA houses can meanwhile fill in the gaps wherever and whenever needed. The purpose was to develop a house that protects urban residents against confrontation with a lot of CO2 emissions and noise pollution. So the design of KODA came about - an instant, multifunctional and movable concrete house that insulates extremely well and can be installed on a plot without foundations within a few hours. The aim was to use as little material as possible. The strong, but extremely thin 6cm concrete walls ensure that residents do not have noise nuisance. Despite the rigid nature of KODA Concrete, the house is mobile, flexible and therefore easy to transport. Yet at the same time, this spaciously tiny living space is the best size needed for one or two people household.

In 2018, we developed a new version of the KODA house that was designed to complement the exclusive and smart concrete KODA—a wooden KODA Light. The idea was to adapt to the market, take flexibility to a new level and present the more fine Nordic feel and design built with a timber structure. As the name already suggests, the house is light—weighing less than half of the concrete house—making more remote locations outside big cities as well as distant destinations much more accessible. At the same time, the wooden KODA has maintained its insulation and strength for year-round living in both extreme heat and sub-zero temperatures while enabling stacking up to two units of its own kind on the roof. Variability and easy customization are other key advantages that the KODA Light offers. One can tailor its exterior finishes and colours as well as interior elements to achieve the desired functionality and environment in the best

possible way. Furthermore, one of the most interesting features is that one can extend their waterfront by using a KODA Light Float that actually floats on the water while attached to the shore. Both the KODA Light and KODA Concrete have a facade-sized illuminating window with spacious comfort, high ceilings and integrated cabinets and storage space. And to top all of that, KODA production is scalable. Simplicity, freedom, beauty, sustainability and scalability are truly the keys to a perfect production and KODA utilizes them all.

Long-lasting design plays a huge role in sustainable thinking. To promote the importance and role of sustainable design, the Eco Village additionally featured Vileo Marinas' innovative sustainable pontoon built from recycled plastic and ecologically sourced wood. To everyone's surprise, in addition to functioning as a catwalk and leisure point for fashion week guests during the event, the component quickly became its own little world—a sort of symbol of openness, accessibility and inner peace—literally a safe haven—welcoming private visitors by sea and engaging the community through yoga classes, connectivity to nature and by inspiring creative ideas.

It became an archetype of sorts showing that, by enabling space for mental wealth and nature, we can foster discovery, creativity and productivity among communities ranging from workplaces to education and individual well-being. In terms of spatial design, the Eco Village proved that by applying the playground concept, we could influence the way people interact and feel in their surroundings. By strategically designing our communities, we create more meaningful lifestyles that enable social interaction and creative problem-solving by lowering the gap to participate due to increased comfort and safety and decreased social pressure.

iv. Living Fairly

Living fairly means to act responsibly towards the environment and society in which you live. In order for us to create sustainable communities, there are many aspects to consider—smart resources, energy, water, materials consumption, human labour and treatment, as well as material developments—just to mention a few. These are all factors that contribute to the climate and our communities, either directly or indirectly. It is our responsibility to live fairly in order to create a more sustainable future that is peaceful and safe.

Sustainable Everyday Life

by Sanna Autere, Communications Expert, Sitra

The way we live, travel and eat and what we buy has a significant impact on the environment. To make sustainable everyday living easier, we need more attractive products and services. Sustainable consumption is becoming the new normal. This means that environmental considerations can become business opportunities. A good life is no longer achieved by simply obtaining more and more goods. We need to move towards a circular economy in which consumption is based on using services—sharing, renting and recycling—instead of owning things. A total of 68% of all of Finland's greenhouse gas emissions are caused by ordinary people. They are created in our everyday lives—therefore we can reduce these impacts through the ordinary day-to-day choices we make.

A recent survey commissioned by The Finnish Innovation Fund Sitra reveals that the majority of Finns consider it important to behave in a way that helps conserve the environment—even if just to set an example. However, people are still slow in transitioning from words to action. It is, however, positive news that Finnish people value taking good care of nature. But people often associate sustainable living with scarcity, sacrificing and having to give things up. "When we make our everyday choices, we are more likely to be attracted by choices that provide ease, health, novelty, social contacts or money-saving opportunities," says Project Director Markus Terho from Sitra. "Here at Sitra, Terho leads the Sustainable everyday life focus area, whose aim is to inspire Finns to make sustainable choices in their daily life. In order for people to change the choices they make or the way they behave, the environmentally friendly alternative must be better and more attractive. There is a need for new, ecologically more sustainable services and products."

Some tips from Sitra:

Sitra's Sustainable everyday life project promotes the change towards a more sustainable life in two ways: by inspiring Finns to make sustainable choices in their everyday lives and by helping companies develop competitive sustainable products and services. Being able to live a good life within the earth's carrying capacity is our mission.

The new SHIFT marketing model contributes to the breakthrough of ecologically sustainable products. The SHIFT marketing model is a practical tool to help companies and marketers choose how to promote sustainable alternatives to consumers.

100 ways to be smart & sustainable, on Sitra's website, offers 100 ways to live a good life within the limits of the earth's carrying capacity. These choices can not only reduce the environmental impacts of daily life but can also improve our quality of life.

Taking the Lifestyle test is a quick way of finding out whether your lifestyle is good or bad for the environment.

Water Consumption

Water is without a doubt one of the most precious yet undervalued resources on Earth and is vital for human life, homes and gardens, agriculture, economy, industry and the environment alike. It can provide a means of transportation and is also a focus for leisure, social and sporting activities. It is therefore so important that we protect this precious resource and ensure a sustainable water future.[25] The fashion industry is one of the main drivers of water usage in the textile production phase where washing and dyeing take place. The textile and apparel industry—and especially textile wet-processing—is one of the largest consumers of water in manufacturing and also one of the main producers of industrial waste water. Since various chemicals are used in different textile and leather production—processes such as pre-treatment, dyeing, printing and finishing—the waste water contains many toxic chemicals which, if not treated properly before discharging to the environment, can cause serious environmental damage.[26]

As the starting point for the Eco Village, it was necessary to look at the critical action points around water consumption in relation to lifestyle and living. Thus, it was concluded that these included water used for drinking, personal hygiene, laundry and cooking. Other important points for consideration were the source and quality of the water supply, the production cycle and the local infrastructure. To create a closed loop water system, the Eco Village purified water from the Baltic Sea to make it suitable to be used for drinking, cooking, garment care and personal hygiene as needed by its visitors and temporary residents. The Bluewater purifying station pumped water from the sea and purified it with unique built-in filter technology, producing crystal clear water free of any contaminants or

[25] Greenfacts. 2008. *Water Resources.* Online Article. Retrieved from https://www.greenfacts.org/en/water-resources/index.htm ; Handwerk, B. n.d. Sustainable Earth: Water. *National Geographic News, n.d.* Retrieved from https://www.nationalgeographic.com/environment/sustainable-earth/water/

[26] James, A.M. & Montgomery, B. 2017. Textiles and Clothing Sustainability: Sustainable Fashion Consumption. Springer Science+Business Media Singapore 2017. S.S. Muthu (ed.). Textile Science and Clothing Technology. doi:10.1007/978-981-10-2185-5_2

salt. By being able to provide new solutions in obtaining safe drinking water, people from countries where there is a shortage of clean water can benefit greatly. Most significantly, being able to purify water in your immediate vicinity has the added benefit of reducing plastic waste and the carbon footprint left in its wake. An issue plaguing countries where tap water is either not drinkable or where water is scarce and/or polluted is the excess of plastic bottle waste. Such solutions then not only reduce the waste but reduce the carbon emissions created in producing, importing and transporting the item that will quickly become waste.

Instead of selling bottles of water at Helsinki Fashion Week, guests were advised to bring their own water bottles that they could fill up at the Bluewater purifying station. The station was able to generate 7000 liters of clean water per day and served still, sparkling and chilled water free from all contaminants including salt, chemicals, medical residues, micro-plastic particles and toxic metals. [27]

Of course, the initial idea of drinking sea water seemed slightly unnerving, but once coming to terms with the process and the fact that this is possibly the future of clean water in many countries, it made sense. Not to mention the fact that it tasted better than any tap water available. As shown by the Eco Village, the technology developed by Bluewater can be applied to areas with limited or zero access to a water supply.

Another action point that we addressed when approaching the question of water use was how to reduce consumption. In Helsinki alone, 40% of a household's clean water is consumed by showering, which was also said to be the most resource-wasteful activity in terms of water consumption.[28] By partnering with the young Finnish brand Showerloop and applying their technology at the Eco Village, we had an opportunity to demonstrate how an individual could significantly reduce their ecological impact in their daily routine. The Showerloop system saves about 90% in terms of water usage and reduces 70-90% of energy consumption by cleaning and reusing the water in real time while showering.[29] The Showerloop functions solely on one bucket of water, and its use can be extended to areas that suffer from water-shortages or have limited access to water. Initiated by Finnish entrepreneur Jason Selvarajan, the technology works by first collecting the water and sends it through a filtration system that catches and removes large particles. The activated carbon removes smells and chemicals, and finally, the UV-light removes bacteria. After usage, the water can either be flushed or be re-used for other things like

[27] Conversations with Bluewater, 2018
[28] Helsingin seudun ympäristöpalvelut HSY [Helsinki Area Environmental Services HSY]. 2018. Käytä vettä järkevästi [Use water smartly]. HSY, May 21, 2018. Retrieved from https://www.hsy.fi/fi/asukkaalle/kodinvesiasiat/kaytavettajarkevasti/Sivut/default.aspx
[29] Showerloop Website 2018

washing laundry. It's the perfect invention for people who love to take long showers, as a person can basically spend as much time as they like in the Showerloop without worrying about wasting precious water. According to Selvarajan, the idea behind Showerloop was to provide technology for climate change adaptation. Design such as this plays a crucial role in the way communities can find solutions to the problems that we are going to face in the near future.

Washing laundry is another human activity that consumes a lot of water and pollutes the environment. While little innovation seems to exist regarding closed-loop laundry systems, many industry experts recommend overall less washing of garments as it has been proven to shorten the life-span of textiles. Every year millions of garments globally are thrown away for losing their newness, shape and feel.[30] Together with Philips, the Eco Village aimed to promote sustainable lifestyles through better purchase decisions and long-term investments in garment care—a practice which is often overlooked. The Philips portable garment steamer was featured on the Eco Village platform as one of the lifestyle solutions helping avoid over-washing by removing 99.9% of the bacteria and odors and helping clothes to maintain their shape and longevity. Additionally, this practice reduces long-term spending, decreases household water consumption and reducing the number of chemicals and microplastics released into our water supplies and into nature.[31] Collectively, making the effort to consider and employ these new technologies can have serious long term benefits for our environment.

Building a Drinking Water Movement for a Sustainable Future Without Single Use Plastic Bottles

by David Nobble, PR & Communications Manager, Bluewater

Bluewater is a world leader in water purification technology and solutions that have placed sustainability and ending the need for single-use plastic bottles at the heart of its business vision. Our founder and CEO Bengt Rittri, a Swedish environmental entrepreneur, believes everyone has the right to safe drinking water—and he has made it his mission with Bluewater to deliver on that belief.

Innovative Bluewater technology and solutions are designed to deliver water to households, business and the public that is free of contaminants such as lead, bacteria,

[30] World Economic Forum, Ellen MacArthur Foundation and McKinsey & Company, 2016. The New Plastics Economy—Rethinking the future of plastics. Retrieved from http://www.ellenmacarthurfoundation.org/publications
[31] Conversations with Philips, 2018

medical residues, pesticides and microplastics and can be generated at point-of-use from practically any water source, whether municipal or from a well or brackish lake or sea. After all, we inhabit a planet where people buy one million plastic bottles per minute: that's a stunning 480 billion bottles year! Yet most bottles end up in a landfill or the natural environment. The United Nations estimates eight million tons of plastic such as single-use bottles end up in the ocean every year, harming marine life and entering the human food and water chains. One study concluded that over 70% of tap water around the world that is considered safe to drink contains microplastics that end up in our bodies.

Bluewater ingenuity has developed the technology—and ways to use it—to deliver practical solutions removing the need for plastic bottles and their polluting transportation from one side of the world to another. A Bluewater public hydration station can easily generate up to 7,000 liters of on-demand pristine sparkling or still drinking water a day using minimal electricity. By generating water on site, we eliminate the need for single-use plastic bottles. The result is less plastic in the oceans and less pollution from transportation. Hundreds of homes along the Swedish and Finnish Baltic Sea coast today rely on Bluewater for their water, which is generated directly from the Baltic Sea. In 2018, the island community of Sandhamn, which sees its year-round population of 90 soar to over 600,000 visitors during the summer months, was saved from running out of water due to climate change by Bluewater. A micro-seawater-harvesting plant using six inline Bluewater Pro water purifiers was put into service to generate over 40,000 liters of fresh water every day directly from the sea.

At Bluewater, we truly believe that everyone shares responsibility for the health and well-being of the planet and all that live on it. We are thirsty for an alternative to plastic bottles and ask you to share our vision of pure water for everyone, everywhere.

Energy Consumption

Energy is one of the most important and pressing problems we are faced with in this century, and it is something that needs to be addressed as soon as possible. While the textile and clothing industry is not considered the most energy-intensive industry, it is comprised of a large number of plants that, when added together, consume a significant amount of energy resulting in substantial greenhouse gas emissions. Despite the reality of solar energy being a viable option as a source of energy among industries and consumers as individuals, coal is still being burned globally. The emissions of these coal plants are severely damaging to the

environment and to our health and they pollute the air we breathe.[32]

The carbon footprint of the fashion industry caused by air pollution in the textile and garment manufacturing process is enormous. The carbon footprint depends largely on the type of material used: synthetic fibers such as polyester have much less impact on water and land-grown materials such as cotton, yet they emit significantly more greenhouse gases per kilogram. A polyester shirt has more than double the carbon footprint of a cotton shirt, while the cotton shirt can often use around 2700 litres of water to manufacture. Polyester production for textiles alone released around 706 billion kilograms of greenhouse gases in 2015, which is comparable to the annual emissions of 185 coal-fired plants which are also used in many clothing and textile factories.[33]

In order to tackle the ongoing energy and pollution crisis, a viable approach would be to implement the widespread use of solar energy in various sectors and for our personal use. Solar energy is not only environmentally more friendly, but is also financially a lot more manageable in the long run.[34] Solar energy has become a reality in many homes globally, with solar panels being assembled on rooftops and in backyards. People are able to enjoy the benefits of clean energy in their private homes without the exorbitant price tag. At Helsinki Fashion Week, the Eco Village functioned on solar energy supplied by our partner Solarvoima, an innovative Finnish company focused on manufacturing and distributing solar energy solutions.

Easy Sustainability, Fun Energy

by Janne Käpylehto, R&D Director, Solarvoima LTD

We installed a solar power plant for Helsinki Fashion Week and the Eco Village to both produce on-site renewable energy and demonstrate how easily it can be done. The installation of the plant took about 10 hours, because we utilized the all-in-1 PV 'powerhouse' plant developed by Solarvoima LTD. Only the panels need to be installed, everything else is already tested and packed in one cabinet looking unit. Easy as pie!

As consumer behaviour is moving into a more aware and comparative direction, business models also need to change. A basic error when building business models is to

[32] Denchak, M. 2018. Fossil Fuels: The Dirty Facts. *NRDC, June 29, 2018.* Retrieved from https://www.nrdc.org/stories/fossil-fuels-dirty-facts
[33] Drew, D. & Yehounme, G. 2017. The Apparel Industry's Environmental Impact in 6 Graphics. *World Resource Institute, July 05, 2017*. Retrieved from https://www.wri.org/blog/2017/07/apparel-industrys-environmental-impact-6-graphics
[34] Conversations with Käpylehto, 2018

make them too fancy. Everyone else but the entrepreneur himself—including investors, consumers, officials—need to understand the values quickly.

Our energy system has worked with the same principles from the start, but local renewables are changing the rules. It is important to ask every now and then: who owns it. There are two major changes going on: even small users of energy can utilize energy efficiency measures, invest in production (PV, even wind in some locations) and play a part in the energy business. Control over your own consumption makes energy tangible, real, and even fun. A second major change is that current increases in fees for electricity and transport, and the development of photovoltaics combined to load optimization and energy storage are making off-grid systems more and more interesting also in other locations than traditional summer cottages. Did you know that Finland has a quite interesting history in use of solar power in summer cottages: some 80.000 systems up and running, those have been installed starting from the 80s.

Let's make a classic sustainability example about T -shirts. You have a basic T-shirt from a cash & carry shop and a quality T-shirt from, let's say, Arimekko. The low-quality, non-brand product costs 8 euros and the second one 40 euros. The service you are buying, is that you have a T-shirt in use. Should you choose either, that service is fulfilled—but it is likely that the quality T-shirt stays in usable condition 5 times longer than the low-priced shirt. Result in cost per year is the same—but choosing the quality T-shirt gives you the brand value.

There is an analogy in small-scale energy. Consumers are ready to buy a solar power system for their house, if the price for the produced energy (calculated in some acceptable timescale, which is less than the technical lifetime of the system) is about the same as electricity bought from the grid. But, the final push to make the buying decision is from extras included on the investment: you participate in producing renewables, it increases your real estate value, you increase the self-sufficiency level of your house and lastly, your neighbors will see your solar panels.

(Janne Käpylehto is an award-winning author, inventor and serial entrepreneur. He works currently as the R&D director of Solarvoima LTD. His most famous project is the Ice Carousel, which has been seen by more than 300 million people worldwide. His comprehensive background includes working as an energy lobbyist, developing disruptive energy concepts for housing and working with NASA relating to mathematical algorithms. His personal agenda is to make energy fun and tangible.)

Material Innovations

Sustainable fashion is a design philosophy which involves a system that can be supported by the human community, creating an environmental and social sense of responsibility. To create eco-friendly fabrics, the materials generally used are natural fibers, cellulose, protein, recycled and upcycled fibers. With synthetic fabrics being one of the leading causes of air pollution and micro plastics, such alternative material innovations and design philosophies are necessary in order to solve this ongoing problem. Moreover, in order to be able to replace some of the virgin materials—such as cotton—with recycled textile materials, new recycling technologies need to be at the center of our attention. When technology and fashion collide, the need for cross-industry collaboration and co-creation in fashion and technology is of utmost importance and incredibly relevant when attempting to approach a circular and sustainable future.

As we've stated again and again, fashion and textiles require considerable amounts of natural resources and can create severe local environmental impacts. A new means of producing fibers will become a necessity as the global demand for clothing increases with population growth and a rapidly increasing middle class. Cotton production requires substantial amounts of water, chemicals, energy and land—and global natural resources are only dwindling in the warming climate. Fossil fuels cannot be spun into polyester or other synthetic fabrics forever, either. Yet, much clothing is discarded before the end of its technical life span and ends up in landfill sites.

As part of the called-for material revolution, Nordic Fashion Week Association started a project in partnership with The Infinited Fiber Company and World Wildlife Foundation Finland (WWF) in 2017 to create a line of clothing supporting the movement towards sustainable textiles. The collection, under the name "The New Normal," consists of only recycled, sustainable and eco-friendly textiles based on the circularity mindset. The name of the fashion line simply reflects the need to go beyond niche markets. By providing regular updates and reports on its progress, the project's mission is to create a powerful and long-lasting dynamic—a new normal in fashion production and textile recycling—by proposing a foregrounding model of responsible creation in the industry. One of the project facilitators, Kaarina Kolle, Climate and Energy Officer at WWF Finland, stated that the starting point for the project was the realization that the fashion industry needs a substantial makeover. Every stage in a garment's life has an environmental impact from the sourcing of raw materials to the final disposal. This calls for us to go back to the drawing board and define a more sustainable modus operandi—for the producers and consumers alike. To push the industry up to speed with what is required, the New Normal vows to drastically improve the ecological footprint of

garments by encouraging and promoting tangible solutions throughout the supply chain.[35]

It seems evident that we need smarter wardrobes with a circular economy and trustworthy supply chains. Luckily, the manufactured cellulose-based and recycled fibers have steadily increased in the last few years, and they provide an alternative to virgin materials. Similarly, The New Normal line is produced using an innovative process that permits the turning of textile and paper waste into new fibers, placing the collection in a closed loop production. This process technology developed by the Infinited Fiber Company can turn cotton-rich textile waste into new fibers—and not just once, but indefinitely. Furthermore, Infinited Fiber can be recycled again and again without decreasing the quality of the fiber. The first project sample collection presentation of The New Normal took place at the Helsinki Fashion Week Eco Village in July 2018 with the collection itself expected to be launched in 2019. Including the social responsibility aspect of fashion, the project is united in a common charitable objective where 60% of the selling price of each collection article will be redistributed to WWF Finland's nature conservation work, while the remaining 40% will cover the production costs.

Nowadays, numerous designers and retail labels from Vivienne Westwood to Stella McCartney—among others—are preferring sustainable manufacturing. These labels are looking to change the fashion scene and opt for more environment-friendly fabrics, focusing on using materials that possess a sustainable history. This also applies to the designers and labels presented at the Helsinki Fashion Week Eco Village, such as Rome-born Tiziano Guardini. Tiziano's methods pose as a fantastic flagship for very sustainable material use, utilizing nylon from fishing nets and ocean waste, yarn made from Castor oil and Greenpeace-approved and ethical cotton all the way from the seed to the actual yarn. In order to save water, Tiziano's designs include denim made from organic and recycled cotton that is used in its raw form. Known for his generous and playful use of colors, Tiziano's fashion aims to show that beyond its responsibility, sustainability has a sense of fun, too.[36] When speaking of sustainable design, this approach needs to be one of the core values. It's important that we treat sustainable fashion the same way we treat regular fashion, because only then can it leave its carefully guarded identity and become a norm over a niche.

[35] Helsinki Fashion Week & WWF Suomi Press Release, 2017
[36] Salter, S. 2018.Tiziano Guardini Challenges Perceptions of Sustainable Fashion. I-D, September 22, 2018. Retrieved from https://i-d.vice.com/en_uk/article/vbnbma/tiziano-guardini-sustainable-fashion

Psychology in Design

by Natalia Gordienko, Professor and Director of the Laboratory of Psychology and Communications in Fashion, Saint-Petersburg State University of Industrial Technologies and Design

Nordic Fashion Week Association is a unique organization with clear principles and values that influence the development of future professionals in the fashion industry. In 2017, we started the collaboration between the Nordic Fashion Week Association and the Laboratory of Psychology and Communications in Fashion (Saint Petersburg State University of Industrial Technologies and Design, Institute of Business Communications). The Laboratory specializes in the field of psychological research in fashion, including the international projects.

It is worth saying that the psychological requirements in order to be a designer are changing. The designer is not only the creator of the idea, but also should actively interact with various professionals in fashion and understand the whole production cycle of the products being designed. During the collaboration, all the participants of the team learned to understand from the inside how to interact effectively and which requirements are put forward by the contemporary fashion industry. Helsinki Fashion Week presented a new business model for a fashion event itself; it is the organization that creates a platform for communication between consumers, designers and business representatives. Thus, the consumer is not outside, but within the process; realizing not just the future trends in fashion, but the basic ideas of the concept of sustainability. Gradually, there is a change in attitude towards the consumption and development of the sense of responsibility for the state of the world's natural resources. In turn, in the process of communication, the designers need to learn to understand the psychological and national characteristics of the consumers that influence choice and preferences in fashion. In this regard, knowledge helps designers get a vision of the target audience.

In the ongoing shows during the Eco Village, we got to witness 30 selected designer brands with collections from different countries. The participants of the project collaborated with each other in the international team of professionals from Finland, Vietnam, Scotland, Germany, France, US and so on, learning from each other and solving various problems. The group interacted with designers and their representatives as well as buyers in the showroom, and the students helped in organizing of the work of the backstage and frontstage, interviewed the professionals from the industry and attended the events of the business program with the participation of the world press representatives, researchers and specialists of leading companies in the fashion industry. Participation in the program allowed the students to learn more about the conception of sustainability and social responsibility, which we highly value. Through this opportunity,

the students successfully revealed their own potential, including through work in the team. The participants will certainly take the new ideas and approaches that can be used in the future development of the fashion industry, and this will come in handy in terms of the psychological requirements of the developing industry.

We need vibrant and aesthetic design in order to manifest the vision of a sustainable fashion future, because in the end, fashion is for everyone and it needs to be desirable, imaginative and beautiful to reach its fullest potential. In terms of material innovations and product development, it's important to treat sustainability and beauty as two fashion concepts that should exist in harmony with one another.

It's important to note that, by turning to nature and her natural processes, we can revolutionize how we design and create materials. Different organisms can help us grow materials, undoubtedly making biotechnology a big part of our future. Numerous material innovations are currently being developed, ranging from closed-loop fiber systems to vegan alternatives such as pineapple, apple and mushroom leather. Such innovations are very welcome; questioning existing frameworks while balancing pressures related to single material usage. For example, pineapple leather is a new material derived from pineapple leaves. As a more sustainable product it can be transformed into compost at the end of its life cycle, making it an extremely eco-friendly fiber alternative. Since pineapple leather is sourced from fruit waste, it doesn't require additional water or fertilizers to those already used in the actual farming process. It also comes at nearly half of the price per square meter in comparison to animal leather.

VTT Sustainable Good Life Exhibition

by Anna Tenhunen, Research Scientist, VTT

Helsinki Fashion Week took its visitors on a journey through Finnish life, fashion, design and well-being with sustainability at its core. VTT Technical Research Centre of Finland, Ltd. partnered with Helsinki Fashion Week and created the VTT Sustainable Good Life Exhibition which was a part of the HFW Eco Village concept. Our exhibition was a unique experience of the living world where circular economy and sustainable values are the basis of every aspect of human existence. This green world concept was demonstrated as a platform that enables connection and co-creation between industries and research institutions, ongoing dialog with consumers and creative approach to technological innovation. This approach makes it possible to develop and establish novel nature-friendly value chains leading to a zero-waste society. As one of the leading research and technology organizations in Europe, our research and innovation services give our partners all over the world, both private and public, a competitive edge. We pave

the way for the future by developing new smart technologies, profitable solutions and innovation services. We create technology that goes beyond the obvious—for the benefit of society.

In the exhibition, we looked at how to look great, live great and feel great with minimum environmental impact. Thus, we grouped the vision of the future of everyday life into modules called "LOOK", "LIVE" and "FEEL". The modules address human experiences and the environmental impact they create. The exhibition questioned the conventional ways of material consumption and disposal while demonstrating sustainable alternatives based on the latest research and innovation outcomes provided by VTT and its partners. We wanted to address the big questions of how you can look great, live great and feel great with minimum impact on the environment. Visitors were invited on an adventure to see, touch, smell and hear the variety of bio-based solutions created for the living environment—from every stage of the development process—from exclusive laboratory-scale prototypes and samples to commercially available products.

At VTT, we have a long history researching and developing natural and man-made fibers such as nanocellulose, biopolymers, composite and foam technologies. Many of the bio-based innovations showcased in the Sustainable Good Life Exhibition are cellulose-based: for example, a great example of everyday life material—paper—is made out of cellulose. Cellulose is the most abundant organic polymer on Earth: it can be sourced, for example, from sustainably managed forests or even agricultural waste. With all the potential applications, it is a real super material.

What if the clothes and shoes we wear didn't cause harmful microplastics? Would they still be comfortable, stylish, durable and affordable for everyone? The LOOK Great module displayed innovations in the field of textile recycling, all-wood based material solutions for footwear and even 3D printed products from nanocellulose. The LOOK Great catalogue consisted of an evening dress from recycled materials, evening bag from biomaterials, shoes and 3D printed earrings made of cellulose-based material and a compost table. The demand for textile fibers will nearly double by 2030 due to population growth. In 2016, annual global textile production was somewhere around 95 million tons. To produce that amount, 9 to 15 trillion liters of water are needed. Although cotton is a renewable resource, its cultivation requires irrigation water, arable land, fertilizers and pesticides that increase its negative environmental impact. So recycled textiles reduce the need to utilize virgin raw materials like cotton.

The evening dress was made for Member of the European Parliament (MEP) Sirpa Pietikäinen, and she wore the dress to Finland's Centenary Independence Day Reception last year at the Presidential Palace on the 6th of December, 2017. The dress was made from 50% chemically recycled cotton (cellulose carbamate made in the VTT Bioruukki piloting center and with the help of the Infinited Fiber Company) and 50% mechanically

recycled cotton made by PuRe Waste. The chemical recycling technology consists of three key processes: activation, dissolving and fractioning. With this technology, you can return waste cotton back into new fibers. The modified fiber is equal to viscose and has a haptic and hand feel similar to cotton. We have combined chemically recycled fibers with mechanically recycled cotton fibers into yarns to minimize the product's footprint. The recycled cotton is a technology platform for fibers suitable for application in garments and other textiles instead of cotton.

Additionally, a biodegradable evening bag was also designed for MEP Sirpa Pietikäinen and was her accessory at the annual reception. Thermoplastic cellulose and polylactide acid (PLA, a bioplastic) was combined using conventional plastic processing to generate a material that is 100% bio-based. The black colour of the bag came from carbon black, which can also be bio-sourced. The thermoplastic cellulose is a cellulose that can be melted and has a toughness and feel similar to leather or high density polyethylene. PLA is the most common commercial biopolymer which is biodegradable. In its natural state, it is a strong and hard polymer, but it is more brittle than plastics like polyethylene (PE) or polypropylene (PP). It is now found in many applications—prominently, in 3D printing. Both thermoplastic cellulose and PLA are capable of replacing conventional plastics in a broad range of applications.

The all-cellulose shoes were created by utilizing several different technologies and cellulose-based materials. The upper part of the shoes were made from pulp and pulp yarn and viscose produced by foam forming. The orange material used on the tip of the shoe with leather-like texture that gave support to the shoe was a cellulose derivative, which is 3D printed on the surface. The heel was made out of veneer which was glued together with CatLignin, while the outsole consisted of thermoformable cellulose derivative. The earrings were 3D printed from bio-based hydrogel and dyed with green leaf dye. Printable paste was produced in three steps and then printed. The final object was dried at room temperature. Sustainable materials can be rigid or elastic, can include dyes, magnetic or electrical properties. Materials can thus be utilized in mock-ups, rapid prototyping, composite applications or even interior decoration.

VTT conducted an experiment for the Sustainable Good Life Exhibition to study degradation of commonly used packaging materials and textiles. The experiment was performed in a composting facility where conditions were optimal for degradation. Four to five weeks of our composting experiment equals several months to even years of exposure in the natural environment such as being thrown into the forest. A number of textile samples, a shoe and several packaging solutions were studied for their biodegradability. Below are the outcomes of the biodegradation experiments on textiles (1) and packaging materials (2).

1. Biodegradation of textiles

During the experiment, cellulose-based viscose degraded completely and cotton almost completely in five weeks; at the same time cellulose acetate and synthetic materials like polyester and nylon did not degrade during the experiment. Cellulose carbamate manufactured by VTT's newly developed technology degraded partly in the studied time.

2. Biodegrading of packaging

The results of the experiment showed that uncoated cardboard already degraded completely in four weeks. If packaging material contained polyethylene or aluminum, these components still remained undegraded after five weeks of composting.

In the catalogue of FEEL Great, we asked what the flavors and vibes of the future could be? Innovations by VTT and recently developed commercial products by our partners proved that a zero-waste society could be the reality of today and that you do not need to compromise your comfort to join the adventure in leading a sustainable life. The catalog, therefore, consisted of food of the future, bio-based packaging solutions and commercial products from our partners. With this theme, we wanted to discover the "food of the future," consisting of well-being for ourselves and the planet.

The current trends in the food market, health and well-being and increasing consciousness on the part of consumers regarding sustainability of food production creates a need for new domestic plant-based protein ingredients. VTT has focused on the utilization of the domestic European plant raw materials and side streams such as faba beans, oats, barley, cereal bran and oil-press cakes for protein extraction. All these raw material sources have a natural image, are GMO free and their extraction steps are simple and green, consisting of mechanical fractionation and further bioprocessing. Based on combinations of bioprocessing, thermo-mechanical processing, wet or dry fractionation and supercritical carbon dioxide (SC-CO2) extraction technologies, VTT has developed methods to concentrate protein from plant materials and their side-streams into fractions having improved nutritional, techno-functional and sensory properties.

Moreover, urban dwellers are hungry for fresh and healthy foods while being increasingly aware of the sustainability of food production. Getting involved in the production of food is also an emerging trend: consumers are becoming prosumers, meaning that they want to take part in the food production process themselves. Many plants found in the Arctic are of interest to global markets but cannot be foraged or cultivated on a large scale. Growing the plant cells in contained bioreactors avoids

over-harvesting of wild plants and excess use of agrochemicals, arable land, potable water or fertilizers in agriculture. Furthermore, VTT's home bioreactor concept enables anyone to grow fresh plant cells at home. Food production becomes independent of the seasons, geographical area and political situations while being sustainable and environmentally sound. The home bioreactor is the first bioreactor designed to bring cellular agriculture to the home environment and into the hands of the end-user. The home reactor prototype is being developed further towards commercialization. Thus, in the Sustainable Good Life Exhibition, lingonberry cells, chips and jam were showcased. Also samples of 3D printed food, a sort of hybrid crouton, were on display.

We also looked at creating multifunctional food ingredients from wood. Consumers—as well as the food industry—demand food products that are healthy, safe, natural and have a long shelf-life. Many of these functionalities can be achieved with wood-based ingredients. Cellulosic, hemicellulosic and lignin fractions from wood possess unique properties such as thickening, film-forming, emulsifying, emulsion stabilizing and antioxidant characteristics that have exactly the same functional properties that the food industry is seeking for their products. The proof-of-concepts performed recently at VTT illustrate that wood-based fibrillar cellulose is a promising hydrocolloid to tailor the viscosity and stability of dairy products. Additionally, the exhibition showcased bio-based packaging solutions by VTT as an alternative to plastic packaging. The 100% renewable and bio-based food packaging solutions look like plastic and perform like plastic, but are not plastic—they're made out of Mother Nature's very own raw material, cellulose. The packaging solution has been awarded by the Ellen MacArthur Foundation in January 2018, won the EcoPack Challenge 2018, and is one of the finalists for the Sustainability Awards 2018 biobased packaging category. Furthermore, in the commercial packaging samples module, our commercial partners displayed their already available sustainable products as a part of the VTT Sustainable Good Life Exhibition. These included innovations such as the Kuplika cutlery set and drinking cup (Plasthill, Ltd.), Flexible packaging (Paptic, Ltd.), Bicycle with a wooden frame (Wiilubike, Ltd.), Cosmetics packaging (Sulapac, Ltd.) and a plate (Jospak, Ltd.).

The FEEL Great catalogue was followed by the LIVE Great module in order to prove that it is possible to live sustainably in a good and enjoyable living environment with a minimum carbon footprint. As VTT research develops innovative solutions to apply novel wood-based materials in architecture and interiors, the LIVE Great catalogue presented materials such as laminated structures for interior architecture, foam formed interior elements with prints, panels for interior architecture (Wall+, Ltd.) and lampshades (Sukarwood, Ltd.). The laminated structures designed by Heidi Turunen combined specially developed high consistency nanocellulose and porous paper structures formed into solid, strong and machinable shapes. Only two raw materials—nanocellulose and paper—are needed to create these kind of structures. All process steps needed are established industrial-scale technology. The nanocellulose,

with dry solids content around 10%, is added between individual fiber containing layers to act as glue. Individual layers are stacked together followed by wet pressing and water evaporation. Upon pressing, nanocellulose saturates the porous fiber matrix, which is then solidified during drying. The structures can be finished in desired shapes using normal wood or metal working tools. These structures have superior bending strength compared to traditional interior board structures such as chipboard and MDF board. The surface itself can be patterned using up to 1.5 mm deep freely-designed forms and printed like paper. Less than 20% of the price of the structure is originated from nanocellulose: the paper is the largest price-contributing component. These structures may serve as interior dividing walls instead of gypsum board and chipboard, having superior strength. Also, open office spaces may find use of these structures as dividing walls, which are light, sound absorbing, entirely biobased and biodegradable. Surfaces may be finished using desired patterns or pictures.

Also made by Heidi Turunen, the foam-formed interior elements and structures presented were light, and the bending strength of dense foams is comparable to gypsum board strength. Dense structures may be cut to desired shapes using laser cutting or other tools used for wood or metal; porous structures using tools meant for insulation glass wool. Foam forming enables production from a large selection of natural and artificial fiber=shaped materials. Foam formed interior elements contain pulp fibers and small amounts of foaming agent. In their dried form, foam elements may be porous or wet-pressed into dense structures. Foam is created by adding small amounts foaming agent to the fiber slurry followed by mixing, filtration, optional wet pressing and drying to create fiber foam. The density level of the fiber foams is adjusted by the amount of wet pressing. These structures may also serve as interior dividing walls instead of gypsum board and chipboard.

Significant amounts of valuable components such as fibers and mineral fillers are lost in the form of industrial side streams. Global demand for sustainable products is steadily increasing and new environmental concerns and waste disposal laws are pushing the industry to find new and alternative uses for waste residues. VTT has created a composite from these side streams and thermoplastic polymers, which can then be turned into products via injection moulding or extrusion. By doing so, the benefits are improved composite properties, decreased waste generation, improved resource efficiency and reduced environmental footprint; and added value is created for side streams.

The cellulose-based sandwich wall structures were structured through foam forming. These two methods may be combined with wood-based products such as plywood or glued timber slabs. Such a sandwich structure process follows the process steps of foam-formed structures and laminated structures. These can be combined together using high consistency nanocellulose as glue. This cellulose "glue" can be added

to structure surfaces using spray, brush or roller. These structures too can be used as, for the previous example, interior dividing walls.

It was a pleasure to collaborate around such an important topic—our sustainable future. Thank you for all the hard work from the VTT exhibition team, Helsinki Fashion Week and our partners.

(VTT exhibition team, Vesa Kunnari, Otto-Ville Kaukoniemi, Maris Uutar, Suvi Setälä, Anastasia Ivanova, Heikki Konu, Satu Koskela, Paula Bergqvist, Ali Harlin, Tiina Nakari-Setälä, Anna Tenhunen.)

It's no surprise that many big retailers and designers alike are experimenting with these innovations; creating prototypes of shoes, clothing, accessories, car seats and even furniture. In addition to pineapple leather, scientists, biotech experts, and entrepreneurs are finding inspiration from existing ecosystems in order to develop bacteria-based materials and processes in laboratories across the globe. These innovations include fungi and bacteria-derived options such as mycelium (used in mushroom leather) and streptomyces coelicolor (used for fabric dying) and have the potential of changing the whole industry.[37]

However, simply replacing one material with another does not always solve the issue. Sometimes it can instead contribute to the creation of a new issue. Therefore, the industry and consumers should be critical and mindful with regards to the proposed solutions on a global scale and consider the commercial effects and consequences. Rather than starting excessive global export of a single alternative, we should consider, for example, solutions that are specific to their geographical areas. In the cases of pineapple leather (even though it is a byproduct of the food industry), we should be mindful about the demand and supply we are creating, to avoid exploitation of communities and ecosystems.

Palm and coconut oils has been widely criticized for their unethical production processes,[38] and similar cases are historically rather common as a drastic

[37] Chieza, N.A. 2017. Fashion has a pollution problem -- can biology fix it? | Natsai Audrey Chiez [YouTube video]. *TED Talks, December 20, 2018.* Retrieved from https://www.youtube.com/watch?v=bZsn1_DARRs&t=3s

[38] Fleming, A. 2017. High-fat oil and low-paid farmers: the cost of our coconut craze. *The Guardian, July 12, 2017*. Retrieved from https://www.theguardian.com/lifeandstyle/2017/jul/12/high-fat-oil-and-low-paid-farmers-the-cost-of-our-coconut-craze ; Himoff, A. 2016. *The Coconut Revolution: How Green Is It Really? [blog post].* June 15, 2016. Retrieved from https://www.linkedin.com/pulse/coconut-oil-revolution-how-green-really-andrea-himoff/ ; Neilson, Z. 2017. Coconut Oil on the Rise: Will This Latest 'Fad' Oil Be Better For Us?. *Sustainable Food Trust, July 6, 2017*. Retrieved from

increase in demand has caused manufacturers to overlook limitations and boundaries in the fear of losing business. As an intriguing thought, could this nurture a new beginning for a "global local economy" of geographical material areas, where fashion itself returns to its roots by becoming symbolic of local cultures and ecosystems, characterized by their distinctive and unique materials? Similar ideas are interesting and necessary to explore: we need cross-industry collaboration from visionaries, artists, scientists, economists and researchers in order to prove and explore if these ideas and materials are viable.

Human Resources (Or: The Lack of Transparency)

The first thing that comes to mind when we hear the word "transparency" is "who made my clothes?"—bringing us back to the topic of "greenwashing." Greenwashing is present in retail outlets, product advertising and marketing strategies worldwide. As it is a fact that most companies are not fully aware of where or how their clothes or products are manufactured, greenwashing becomes an inherent factor in the advertising process whether consciously or not.[39] The call for transparency has forced brands to look deeper into the manufacturing process of their products; however, not all brands are interested, and many have not been affected greatly enough by this movement yet. Many companies, on the other hand, are fully aware of what they are doing, but because they have not put in the time or effort or simply have not been able to change their core values due to their production processes being 'set in stone' for decades, they resort to 'white lies' (in other words, greenwashing) in order to sell their products.

A common form of greenwashing that is used in the fashion industry on a regular basis is when a company launches an environmental program or product campaign while its core business is still unsustainable.[40] In essence, the company or organization pretends to be more ecological and more socially responsible than it truly is, promoting one specific product in an attempt to draw positive attention to them as a whole. A clothing item (or any item, for that matter) sporting an "eco" sticker or tag generally appears a lot more appealing to most consumers nowadays, making it confusing—if not impossible—to know whether or not an item is indeed what its tag claims it to be. As more and more organizations take this approach, it becomes very difficult to know who is being honest and who is not. We argue that

https://sustainablefoodtrust.org/articles/coconut-oil-on-the-rize-will-this-latest-fad-oil-be-better-for-us/

[39] Care2. 2014. *5 Examples of Greenwashing In The Fashion Industry [blog post].* Care2, May 15, 2014. Retrieved from https://www.care2.com/causes/5-examples-of-greenwashing-in-the-fashion-industry.html

[40] Snijder, L. n.d. *Why Greenwashing in A World Of Fast Fashion.* Mochni. Retrieved from https://www.mochni.com/why-greenwashing-in-a-world-of-fast-fashion/

transparency is thus of utmost importance if we are to make a true and lasting change.

There are many more ways companies can convince masses of people into believing that they are sustainable and ecologically inclined. Brands can, for example, make vague claims or simply leave out important and incredibly relevant facts. Again, some may do this unintentionally by just using information from their suppliers and not doing further research. Transparency has managed, nevertheless, to become the center of attention over the last couple of years following a chain of unfortunate events regarding the fast-fashion industry that caught the world off guard. The idea is that if consumers know where the products they purchase are being made, workers in the industry will somehow benefit.

Transparency requires brands to know exactly who makes their products and to trace their origins: who stitched the garments, who dyed the fabric and who farmed the cotton? It makes accountability possible, so that in the event that human rights or environmental abuses are discovered, it is much easier for the relevant stakeholders to realize what went wrong, who is responsible and how they can fix the situation. Consumers around the world have raised these questions and rightfully so: where did my clothing come from? Who made it? Is it indeed ecologically friendly and sustainable?

Creating More Ethical Supply Chains by Talking with Workers

by Ilona Mooney, CEO, Work Ahead

Many of us sense a connection with our planet and its people. We like to make choices that are in harmony with nature and that contribute to a world where everyone has enough. These choices matter: today half of the world lives on less than 2.5 USD per day, and global inequality keeps growing. It is often surprising to think of the many people that create a single item of fashion. Countless steps are taken before a garment is in our hands. Someone farmed the cotton and someone produced the yarn and the fabric. Dyes come from somewhere, and so do buttons and zippers. And once a garment is produced, many more people are involved in packaging, shipping and selling it. Two thirds of the world work in connection with some kind of supply chain. Because supply chains can be so complex, we rarely know who makes our clothes. We don't know if what we're wearing was made from Uzbek cotton harvested by school children or if the yarns were made in a factory holding its migrant workers' passports to keep them from quitting. We hold great power for good or evil through what we choose to buy.

Rather than fueling exploitation, what we buy can create decent jobs that lift women and men out of poverty, let them provide for their family and send their children to school. But it is difficult to know who makes our clothes—not just for consumers, but also for brands. This is because verifying working conditions typically means sending someone to a supplier to have a look—and this is expensive. It is estimated that brands usually send in-person auditors to only 2-5% of their supply chain. That's why at Work Ahead, we develop scalable technology to let brands talk directly with the people in their supply chain. With modern technology, we can hear about workers' lives on the other side of the world. When we know who makes our clothes, we can use our buying power to advance a world of peace, freedom and fairness. For that reason, we save our data and details on how it was collected in a blockchain and let the brand share that data with consumers. Modern technology lets us understand how we're helping women and men on the other side of the planet to make a living.

(Work Ahead provided technology to talk directly with the workers who made the New Normal sample collection for Helsinki Fashion Week. Additionally, they hosted an event for Helsinki Fashion Week designers, showcasing their work in Nepal and demonstrating how their technology works, including showing their blockchain for the first time (built with the support Futurice's Space Program).)

v. Enabling Intersections of Digital and Physical

The world is changing; and it's changing fast. New technologies, equipment, transportation and applications are being introduced at an exponential rate; each one looking to solve an industry-specific issue. In terms of digitalization and technology, communities are starting to adapt to artificial intelligence (AI), Big Data, virtual reality and many other new technologies. To bring this aspect into the Eco Village, we exchanged industry insights with our partners—DAIN Studios and Valossa AI. It is clear that digitalization is rapidly changing the way we live, and there is enormous potential for working with data and developing artificial intelligence to enhance creativity, improve efficiency and employ data-driven decision-making in businesses and communities.

There are many factors to consider in our data-driven societies. The decision-making process when enhanced via a data-oriented approach, for example, can significantly reduce human bias and help communities to do things systematically. Data-driven processes and operations can also create transparency within communities—be it cultural, organizational, governmental or educational—which can then be used to foster a trusting and more sustainable environment.

The collaboration between DAIN Studios and Adidas in making the 'Speedfactory' is a really great example of how Big Data can combine with the fashion industry in a beneficial way. The 'Speedfactory' is a way of co-creating a customized shoe through automation; demonstrating an efficient way of producing limited runs of a customizable product. Majella Clarke explains more about this process in her article below.

Data Driven Sustainability and Digital Circularity in the Fashion Industry

by Majella Clarke, Senior Analytics Strategist, DAIN Studios Oy

It's no secret that the global fashion industry is currently one of the most resource intensive and wasteful sectors in the world. In the last 40 years, with growing global forces and increasing technology possibilities, the fashion industry's indirect and mostly unintentional social and environmental impacts have called for a new future.

In 2015, Eileen Fisher, a clothing industry magnate dubbed the clothing industry as "the second largest polluter in the world... second only to oil." This statement has gained a lot of traction and attention to the clothing industry, raising awareness from the resource inputs required to grow cotton, chemicals being dumped into waterways from dyes used in textile manufacture, to the greenhouse gas emissions involved in the logistics and production of the different segments of the value chain. Fast fashion has seen some recent developments on the marketing front, such that with shortened production cycles, the World Resources Institute estimates that the number of fashion seasons in a year has increased from two—Spring/Summer and Fall/Winter—to as many as 50-100 micro-seasons.[41]

According to the Pulse of the Fashion Industry, the top materials with the highest environmental impact are leather, cotton and wool.[42] *In each of these materials there are multiple environmental impacts occurring throughout the value chain. Let's look at leather, for example: leather is produced from animal hides and is linked with the livestock industry's impact of contributing to 14.5% of global greenhouse gas emissions through deforestation for grazing land and methane emissions from the animals. To produce leather hide, about 300 kg of chemicals are needed to produce 1 ton of leather hide, and these chemicals are often released into waterways from surrounding tanneries mostly in countries with lax environmental standards. It is estimated that 16,000 liters of water is used to make 1 kg of leather.*[43] *Other materials such as cotton and wool also*

[41] http://www.wri.org/blog/2017/07/apparel-industrys-environmental-impact-6-graphics
[42] https://www.livekindly.co/leather-environmental-impact-fashion-industry/
[43] https://goodonyou.eco/the-hidden-costs-of-leather/

have similar environmental impacts as they are processed along the textile value chain and sold as clothes in stores.

DAIN Studios has an ambitious vision for the future where Big Data, AI and digital transformation can play a key role in driving, as well as indirectly attaining, sustainability across all industries. Digitalization and AI are creating new opportunities across many domains to reduce greenhouse gas emissions, optimize water consumption and reduce wastage, optimize conditions for growing bio based raw materials, continuously improve the use and distribution of energy, create new design processes, improve safety, predict maintenance needs, automate targeted marketing, and provide innovative new business models - the possibilities are growing and endless.

Big Data and AI offer the potential to have a positive, rapid and sustainable change on the fashion industry across several areas, whether it be through the circular economy or upon specific segments of the supply chain. First let's consider where Big Data can come from in order to gain insights into how Big Data and AI can drive sustainable choices, processes and solutions in the fashion industry. The agriculture sector is undergoing digital transformation that is changing how inputs such as water, fertilizer, pesticides and other chemical treatments are applied so that applications are optimized to current weather and growing conditions. Digital sensors in the crop are able to continuously collect data on weather, wind, humidity, soil moisture and UV light to provide information to farmers with a Mobile App on when, where and how to manage the crop. Data can also be used for machine-2-machine (M2M) communication. A good example of M2M communication on the farm would see the use of humidity sensors in the crop "talk to" sensors connected to a water pump for irrigation, combined with weather prediction data to determine the exact amount of water to irrigate the crop. Without these Big Data technologies, farmers are likely to apply human judgement for irrigation resulting in less precize, sometimes sub-optimal management decisions.

Precision agriculture creates a decision support system tailored to the farm by collecting multiple points of data with sensors, drones, satellites, photos and audio clips resulting in Big Data. With the data, decisions lead to reduced inputs and costs, increased yields and profits, and improved overall sustainability of the crop. Such data can be used to predict and optimize different farm management decisions that can reduce and even improve the environmental impact of the crop, while also improving the farm's financial performance. When applied to crops such as cotton, or animal feed, the fashion industry's environmental footprint will certainly reduce.

The textile manufacturing process is undergoing digital transformation which is resulting in a move from mass production to mass customization. Consumers want their garments personalized according to style, fit, pattern, color and print. Textile manufacturers and designers are responding by inverting the mass production business

model, and using digitalization and AI to customize using mass production efficiency.[44] Complex algorithms are continuously developed to improve the accuracy of textiles produced to meet demand. With access to enough data on local demand market characteristics, sizes and body shapes, and changing consumer preferences, textile manufacturers can reduce garment waste by applying highly accurate trend forecasts to determine the amount of material to produce.

When it comes to textile manufacturing machines, digital transformation is already improving the performance and efficiency of different factory functions and operations. Using Big Data, analytics, Internet of Things (IoT), M2M and the cloud, the textile manufacturing processes is increasingly becoming automated and less dependent on human intervention. Most recent improvements have come in using Big Data analytics for equipment monitoring and predicting maintenance, stock management for dyes and raw materials, workforce management and coordination.[45]

In the opinion of DAIN Studios, if Big Data thinking and AI were applied to the textile manufacturing process, there are options to reduce waste of material inputs if machines are maintained, and human errors are reduced. One of the recent holistic approaches to textile manufacturing is being tested through the Fashion Big Data Business Model, an EU project with 11 partners working to make the clothing manufacturing processes more sustainable with increased flexibility. Focused on the luxury segment, the platform under development is not expected to immediately displace the bulk of textile manufacturing currently in Asia, but rather the platform would be used to facilitate the production of customized garment production, from design to delivery. Specifically, the platform can be used for virtual fitting, AI based recommendations, and customized functional comfort to inform designs. The manufacturing aspect of the platform could be used to select suppliers that are local that meet certain standards and conduct an environmental footprint analysis for the manufacturing. The platform is currently designed to collect data for a few customized products such as made-to-measure shirts, functional sportswear, technical underwear and performance urban wear. The platform connects business-to-business and business-to-consumer functions, and as a result, could potentially reshape the European business model for textile and clothing companies 6 if the business case is viable.[46]

These types of platforms will not shift the location of production of the textile industry in the short run, but could do so in the long run, if they become competitive with the labor-intensive factories mostly based in Asia. It is possible that we are already

[44] Grimal L, Guerlain P. Mass customization in apparel industry-implication of consumer as co-creator. Journal of Economics & Management. 2014 Jan 1;15:105.
[45] https://www.linkedin.com/pulse/how-iot-transforms-way-more-sustainable-textile-sacheen-patil/
[46]http://www.hb.se/en/About-UB/Current/News-archive/2018/January/Integrated-digital-platform-for-a-new-clothing-business-model/

seeing indications of such a displacement using customization through platforms to meet local demand. Adidas is a good case in point, as they have already operationalized their "Speedfactory." The concept is such that a shoe is co-created and customized. The Speedfactory is automated and capable of efficiently producing limited runs of a customizable product—it can also get shoes to market three times faster than conventional means—and these factories are data-driven, responding to digitalization, and located in Europe and the US. These types of data-driven innovations are going to create immense opportunities for efficiency improvements along the value chain, and the great point about the Adidas SpeedFactory is that they are using parley ocean plastic as an input material—it's great for sustainability too.

New business models can link marketing information with inventories and logistics via a common digital platform, and this is where digital transformation can be used to truly reduce wastage and inefficiencies in the fashion industry. Consider the international clothing chain who is manufacturing mass production of textile designs for global markets. Realistically what sells in India or Pakistan, will be different to the designs that sell in Europe. Using Big Data to understand consumer preferences, behaviors and trends can be studied by retailers to optimize their stock aligned with local preferences through Big Data analytics. It means that there is less likelihood that garments and accessories will not need to be burnt or discarded if they remain unsold. Perhaps what is really game changing across the fashion industry is the opportunities digitalization within the circular economy can do to improve the sustainability of the fashion industry. In the last two years a number of circular economy initiatives have been launched and directed towards making fashion sustainable. For example, the Circular Fiber Initiative was launched at Copenhagen's fashion summit last year in 2017. The Make Fashion Circular initiative has serious buy-in from brand conscious companies and designers such as Nike, Stella McCartney, and H&M. We see momentum taking shape in Finland on this front as well with Stadin Ammattiopisto vocational college, commencing a new program in August 2018 creating an environment for textile and fashion design students to learn to produce products that can be part of the circular economy.

The circular economy on its own merit has led to new digitally driven business models that use Big Data, AI and digital transformation to improve sustainability and profitability. New apps and processes have been developed to collect textile waste and discarded garments that can be used in upcycled products e.g. Globe Hope. Biobased materials used in textile manufacturing of garments designed to quickly decompose have also gained interest from fashion houses. Algae Apparel from Alga-life, winner of the Global Change Award in 2018, is a good example of an innovative biomaterial that can be grown with a fraction of the environmental impact of cotton and turns algae into a bio-fiber. Algae apparel can also be broken down into an eco-friendly powder that can be used to dye clothing. The designers also claim that because algae contains

antioxidants, vitamins and nutrients, it is beneficial for the skin.[47]

Waste that was once polluting our beaches can also be used as material inputs into fashion. Adidas Parley use plastic found in the oceans and beaches as material inputs into their shoe designs, as well as raising awareness of plastics in our oceans. All these recent examples show that there are many different options on how using circular supply chains can lead to new business models and product innovations for the fashion industry—and the exciting thing is that it is just the beginning, and that Big Data will continue playing a pivotal role in the future. Looking ahead, digitalization will also offer many different access points that could improve sustainability in the fashion industry, such as shared platforms, or Products-as-a-Service (PaaS) where consumers can exchange, lease, co-use, or upgrade their fashion accessories. Such innovative business models will require a different type of fashion that is less driven by seasons and celebrities, and designed for a longer exchangeable product life. We are already seeing such a trend occur in Mobility-as-a-service (Maas) and shared platforms such as Drive Now and Car Next Door, so it is not impossible to think of the fashion industry going through a similar revolution in the near future.

Let's face it: linear economic models and matrix like organizational structures are not really designed for the Big Data driven industrial symbiosis that can arise from the circular economy. There is paramount urgency across multiple environmental dimensions whether it be human-induced climate change, plastics in our oceans, air pollution or the looming global water crisis. On the other side of the crisis is the fourth industrial revolution, that uses data and analytics to gain efficiency, with platforms and AI to optimize and predict resources. The new business models that come from sharing data, knowledge and resources have strong financial foundations, and require a keen mindset for identity renewal and change. But if there is one thing that the fashion industry is well equipped for, is that unlike oil, the fashion industry is run by the world's most agile, business responsive change agents. Change is at the core of the fashion industry's business model, and setting trends is what they do best.

(Majella Clarke has worked in more than 35 countries on sustainable land issues, green growth and climate change. She is passionate about promoting the role of digital transformation within the circular economy, and how Big Data and AI can be used to solve sustainability and climate change issues. She has more than seven years of experience as a negotiator and advisor to various delegations to the UN Framework Convention on Climate Change, and frequently provides strategic and technical advice to public and private sector clients, as well as start-ups.)

[47] https://globalchangeaward.com/winners/algae-apparel/

Another partner at the fashion week, Valossa—a Finnish artificial intelligence company—provided AI-powered video services to enable a new generation of analytics, content management tools and methods for business development. In aid of the Eco Village's research and reporting purposes, this partnership enabled visitors to utilize a video-based facial-recognition system which was able to register things like gender and emotion. Launched beside Finnish Technology Research Center VTT's on-location exhibition space, the partnership was a stepping stone towards the emotional intelligence (EI) mapping of the future.

Moving beyond traditional data-collecting methods, Helsinki Fashion Week entered a new era of research and result reporting. With the constantly changing technology landscape, it was important for us to promote solutions and to encourage people to see the benefits of AI instead of ignoring or fearing it. Visitors were able to map their emotions and experiences through the Valossa AI booth situated in Öljysäiliö 468 without needing to compromise the General Data Protection Regulation (GDPR) rules.

AI Recognition Captures Value from Video and Image Content

by Tommi Karjalainen, Business Developer, Valossa Labs

Artificial intelligence (AI) technology is rolling out to all applications of society, whether it's for business, entertainment, science or public services. In fact, it would be easier to define the industries which are not likely to be affected by disruptive AI technologies. The fashion industry, as a highly visual-oriented industry, could benefit greatly from AI applications to provide tailored offerings and valuable individual experiences to the consumers. Valossa Labs, Helsinki Fashion Week's 2018 partner, is working closely with Video and Image Recognition AI.

Extracting rich metadata from audiovisual elements provides actionable insights and a next-level consumer experience at the same time. Let's say that you've watched a video of a beautiful jacket or dress, but the video or ad doesn't provide enough external information, such as item name, logo, brand, online shop or designer. AI can be trained to understand video like a human does, but it also has access to a huge amount of information. These AI skills work hand-in-hand and can guide you to the correct online store and provide you with all the information you need. The same principle works with social media influencer content which have a huge impact. Promoted content with pictures and video can be analyzed at superhuman speed and followers can be automatically provided with all the information and easy access for purchases. Don't you just hate it when relevant item details are missing from something you love and want?

Brands and designers can also use AI as a brand safeguard—making sure your brand and products are not displayed in a negative context. Today we are facing a content overflow from all sources which human moderators simply cannot keep up with. AI can find the content where your brand is appearing or mentioned and analyze the content to provide possibility to take action. The options are endless.

Movement of Innovation

People have always been moving and mobility has always been an integral part of human society. Therefore, it's only natural that transportation would play an important role in our ongoing desire to create sustainable communities. In terms of the Eco Village platform, when we looked at transportation in general, it was clear that we had to isolate ourselves from the fossil fuel-based means of transportation as much as possible. Research has found that electric cars emit 50% less GHG than diesel when accounting for total life=cycle emissions including manufacture, battery manufacture and energy consumption in its entirety.[48] Thus, functioning on solar powered electric transportation both on water and land became our main goal. We achieved this by partnering with Tesla and Q-Yachts.

As private transportation and GHG-emissions from cars keep steadily increasing simultaneously with economic growth, by working with Tesla on the Eco Village platform we succeeded in drawing attention to the growing viability of electric cars while replacing hundreds of kilometers of non-renewable event-related driving with that of renewable. Transportation plays a huge part in the life of a modern individual, thus making it also a central component of the Eco Village environment. In order to test the usability of smart transportation during the Eco Village initiative, the employees of the fashion week transported guests around Helsinki with a number of Tesla Model S's, utilising the supercharger network in Southern Finland for recharging.

Additionally, the development of technologies such as auto-drive and other advanced AI features make the driving experience less stressful and far less cognitively demanding. Focusing not only reducing the carbon footprint of personal automobiles, Tesla has extended their sustainable thinking to their business model and many other aspects of the design process. Tesla has been at the heart of the sustainability debate for a while now, and the company's founder, Elon Musk, is

[48] Neslen, A. 2017. Electric cars emit 50% less greenhouse gas than diesel, study finds. *The Guardian, October 25, 2017*. Retrieved from https://www.theguardian.com/environment/2017/oct/25/electric-cars-emit-50-less-greenhouse-gas-than-diesel-study-finds

internationally recognized for his ambitious and pioneering spirit when it comes to the future of sustainable innovation and thinking.

Focusing not only on land transportation, the seaside location of Helsinki with its many lakes and waterways as well as the actual event location obliged us to assess the possibilities of water transportation. Nearly three quarters of the planet's surface is covered by ocean, and maritime transportation plays an essential part in the global economy. According to the International Maritime Organization (IMO) 90% of transportation of trade goods and raw materials around the world happens on water, while oceans hold 97% of the planet's water and produce more than half of the oxygen in our atmosphere.[49]

One meaningful way to contribute toward the livelihood of our oceans is to opt for an eco-friendly boat as opposed to one that relies on fossil fuels. With the increasing demand for solutions for how to save our seas and protect the environment while still being able to travel via water, Q-Yachts' Oceanvolt provides electric solutions, making sailing an enjoyable, eco-friendly experience. Electric boats operate at a fraction of the cost of conventional fossil-fuel powered boats while providing maximum torque and offering a more silent journey without the fumes. Other important aspects from a business perspective were Oceanvolt's ability to offer 'repowering' solutions in which they convert existing diesel engines to modern electric ones. This process involves removing the diesel engine, fuel tanks, and exhaust system, cleaning up greasy engine compartments and freeing up both weight and space below deck. Oceanvolt's mission is to produce silent, lightweight, reliable and easy-to-use electric motor systems for boats that are easy to install and maintain. The partnership focused on creating awareness regarding the accessibility and availability of such technology while providing a concrete model of a sustainable and ecological solution to sailing.

Conclusion

We all want to change the world and we can by starting with ourselves and our daily choices. We need more meaningful lifestyles to create better communities, and we need to focus on our well-being—both mentally and physically—to create such a change in the world's mindsets. It's time that we take more responsibility as entrepreneurs, business owners and consumers by giving up unethical production and supply chains and by demanding more transparency from everyone. There's no room for greenwashing and we can change things by looking for the information

[49] UN Business Action Hub, 2018. *IMO (International Maritime Organization). n.d.* Retrieved from https://business.un.org/en/entities/13

ourselves. Our ideas and opinions are powerful and we can use them for the benefit of society and our planet. If we become more conscious about our food and dietary options, waste less and preserve more, stop applying harmful chemicals to our bodies and nurture our skin with organic and natural products instead, not only will our health be boosted but the negative environmental impacts will decrease. We can reduce our negative impacts and feel better by opting for and demanding environmentally friendly packaging and ethical production—the solutions are already there and are improving all the time.

Globalization is bringing us all closer to one another, increasing the impact we have on other communities and people's lives. By embracing the open world and the growth of social networks, we can learn from other cultures and industries to improve our own communities. As the changing world gives birth to new ideas and concepts of identity, we need to be prepared and open. We should listen, pay attention and invite others into the decision making process, as this is the only way to increase trust. As everything is interconnected, we should embrace our humanity through mindful interactions and relationships more than anything. By sharing our ideas, we can create better solutions. Create and focus on experiences with people around you, encourage them to spread their stories and see a wave of influence in your surrounding community. By leveraging our difference in backgrounds, we can all bring different innovative ideas and knowledge to the table; and together with our shared set of values, form a collective force to foster positive change in our community.

By seeking inspiration from things and disciplines that are seemingly odd or unrelated, we can create our own playground. When designing the spaces in which we interact, we should think about our connection and emotions towards nature and how this influences our experiences, thoughts and personalities. Living in a world where 55% of total population live in urban areas,[50] we need to offer solutions and options that give birth to more meaningful experiences. By investing in ecological design and architecture, we can create stimulating living experiences and spaces that support sustainable urban development.

We have seen an emerging movement in the mini-mobility housing concepts where circular living is the fundamental focus. This trend can become a solution to the coming housing crisis in megacities and other areas where development is in demand. The choice of sustainable and natural materials will connect with our well-being, while the repurposing of existing buildings or products will help us

[50] United Nations Department of Economic and Social Affairs. 2018. *68% of the world population projected to live in urban areas by 2050, says UN.* May 16. 2018. Retrieved from https://www.un.org/development/desa/en/news/population/2018-revision-of-world-urbanization-prospects.html

reinvent new meanings and stories with the structures around us, focusing more on the topic from a localized point of view—not only in terms of culture, but also with regards to the availability of resources.

Living fairly means to act responsibly toward the environment and society you live in: we can create a big change on an individual level, and soon this change will snowball into a collective effort. We need to encourage our communities to use more sustainable sources of water and to introduce technologies that can help in case of crisis, ensuring that everyone will always have pure water to drink. Industries and businesses can't continue to waste this valuable resource by applying it unsustainably in their production processes. By implementing innovations, we can collect and filter water from various sources—sources which have previously been difficult or impossible to convert. We should invest in these options as communities and individuals. At home, we can focus on simple things like using the dishwasher and washing machine only when they are full—and encourage people around us to do the same. We can convert to renewable energy wherever possible and minimize the use of electrical appliances, for example, by using natural light in the daytime. We should consciously look into using electrical products with economic & environmental function. We can try as much as possible to avoid plastic when shopping for new products, and, by paying attention to the materials used, switch to natural material-based products. We can invest in high-quality products that have a longer life-cycle to minimize waste and do less shopping. During the disposal of products, we can always consider re-use opportunities, like repurposing and recycling. We can buy products from companies that truly care, ask who made our clothes and where our food came from.

We are living in a disruptive world; one where the future that was envisioned by scientists and sci-fi writers decades ago doesn't seem far off anymore. Our communities need products and services that respond to the needs of the future and, at the same time, address our natural human—essentially aligning the concepts of 'future needs' with what we actually need as a species to thrive. In addition to investing in new technologies, we should focus on offering better services and more personalized experiences while inviting people to interact and take part in the processes.

The Eco Village became a landmark project showing us that living a sustainable life and wearing sustainable fashion is not only needed or desired but also surprisingly possible every day. There are no excuses to continue living unhealthy and unsustainable lives, especially when considering the effects that the outcome of this way of living has on nature. We need more initiatives and platforms like the Eco Village to inspire and help our communities transition to a sustainable way of life. We hope that the Eco Village idea encourages people to collaborate and

co-create, innovate and look at our existing models and rules from a new angle in the same way that all the people who came together to make the Eco Village possible did.

By producing solar power to meet the needs of the village, purifying drinking water from the Baltic Sea, using organic and microplastic-free cosmetics, sharing our experiences living in a mobility house and using electronic transportation on land and water, we succeeded in creating the ideal neighborhood and lifestyle of the future. By working with brands and designers who are committed and aiming to achieve the same values while forming partnerships that support the mission, we're looking to accelerate improvements cross-industry through this publication by sharing our knowledge and processes to support new concept development. The industries, consumers and communities are changing and we need to take action now in order to stay relevant. We hope that many will follow, sharing the same efforts and enthusiasm in their daily lives, creating enduring communities without harming the environment. The change isn't easy, but by working together we can all create our own Eco Village.

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Allowing space for failure, we need to innovate with childlike confidence, developing smart technologies that create smart environments allowing us as individuals and communities to have more time to focus on the things that actually matter. By focusing on digitalization instead of fearing it, concepts like AI, EI and smarter user experiences make technology our second skin, giving us richer experiences, enabling intersections of digital and physical in our everyday lives.

Rather than only emphasising the negative aspects of modern life in industrialized communities, we should also focus on the positives. We propose that sustainable development should not only compliment the natural environment but also utilize the existing strengths inherent in our communities. By creating such a shift in attitudes, and respecting the existing assets and networks of existing communities, change becomes actionable, sustainable and durable. Our communities will be able to engage in more effortless and inspired communication, as the feeling of endless scrutiny and criticism fades away.

It is up to us as individuals to partake in the decision and development process of our communities in order to respect and follow agreed-upon procedures, visions and values. Combining traditional Finnish culture, lifestyle, and nature; with aspects of global trends and advancements, the Eco Village was able to resonate with the audience.